

# WESTERN INDUSTRY



• Nation's fastest growing area needs more to stand on. Inspecting linoleum in a West Coast plant. For details see page 5.

**IN THIS ISSUE:** Developing Tomorrow's Supply of Management Timber; Check Freight Rate Spiral by Revising Canal Tolls; Short Haul Volume Swings From Rails to Trucks; Both the Boss and the Help Can Cash In If They Try; Before You Start Your Pension Plan Listen to Some Good Advice; Life Begins at 65 Annual Index to "Western Industry"

**Thirty-Five Cents**

**VOLUME XIV**

**NUMBER 12**

**December, 1949**

# SAFE DELIVERY!

## **CABCO ALL-BOUND BOXES REDUCE BREAKAGE, BRUISING, SAVE 4 OTHER WAYS, SAYS WESTERN PRODUCE GROUP**

"No breakage in packing or handling, no bulge to bruise contents, real strength for travel protection!" That's what a leading group of Castroville, California artichoke shippers say about Cabco all-bound wooden containers. This group states that Cabco all-bounds eliminate time lost re-coopering broken boxes, simplify car-loading, save warehouse space, and make it easy to get containers to growers. They say "We receive and store Cabco all-bounds flat, in one piece, ready to go. We don't lose time nailing up boxes, or rounding up tops, sides, ends or nails when someone runs short!"

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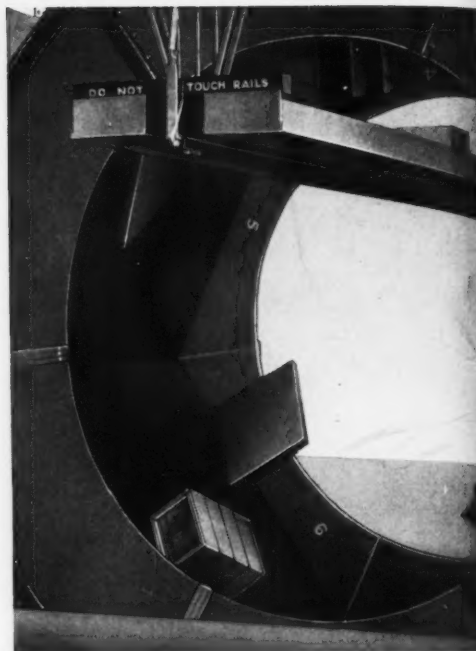
from the produce and fruit business to the heavy machinery industry...the great strength and light weight of Cabco all-bounds bring shippers multiple benefits. Cabco all-bounds give excellent product protection, often save weight, store in minimum space, handle easily, and fold together instantly without hammer or nails. Cabco containers are made by the West's oldest, foremost manufacturer of wooden containers.

Find out how Cabco containers can help you! Investigate Cabco's container design service! Write direct to exclusive sales agents:

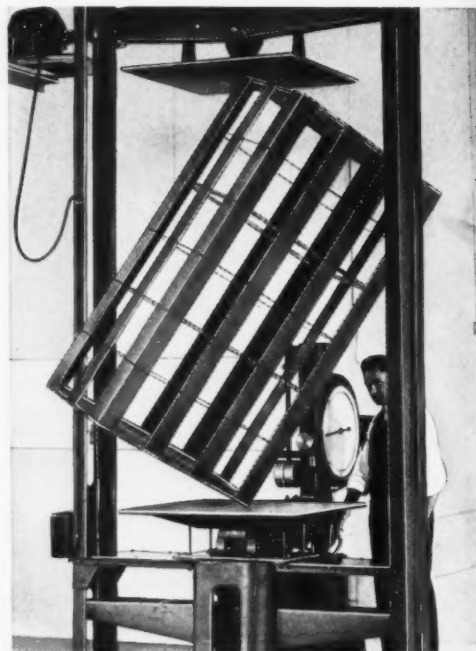
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Sawn Shook, Barrels, Veneer Covers and All-Bound Containers

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**REDUCE COSTS • INCREASE OUTPUT**

**by getting the Right Metal  
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**SEALS.** Felt seals—plain, laminated, or impregnated—retain grease and oil, are self-lubricating, and exclude dust, fumes, water, and mud. Used to seal bearings, housings, etc.



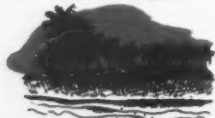
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# This Month in WESTERN INDUSTRY

VOLUME XIV

DECEMBER, 1949

NO. 12

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#### Front Cover

From one-fourth to one-third of all the nation's new housing from now to 1960 will be built in the Pacific Coast area, economists indicate. Obviously this means big demand for house furnishings of all kinds. Scene shows inspection table in West's only linoleum plant, The Paraffine Companies, Inc. at Emeryville, Calif.

# why CRANE

## DIAPHRAGM VALVE DESIGN

### is Superior

**LONGER DIAPHRAGM SERVICE LIFE**—Diaphragm is not subject to cutting, crushing, and rapid wear since it is used *only* to seal the bonnet; not for seating purposes.

**POSITIVE SHUT-OFF** in case of diaphragm failure. *This is an exclusive Crane safety feature.*

**ACCURATE SEATING**—Circular flat face disc with resilient neoprene seating surface gives tight closure—independently of diaphragm—on all fluids.

**GREATER FLOW CAPACITY**—Y-pattern body design gives closer approximation to straight-line flow, reduces resistance and pressure drop.

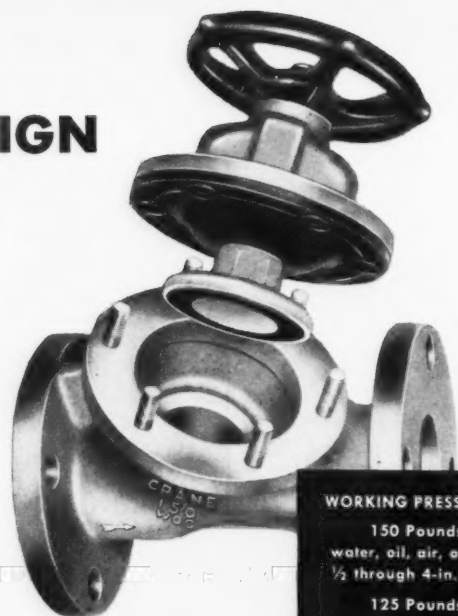
**EASIER OPERATION**—Less torque—fewer turns—needed to operate valves—especially in larger sizes.

**PLAIN IRON OR NEOPRENE-LINED**—Unlined valves will handle all common services. Neoprene-lined valves are recommended for fluids corrosive to iron but non-active chemically upon neoprene.

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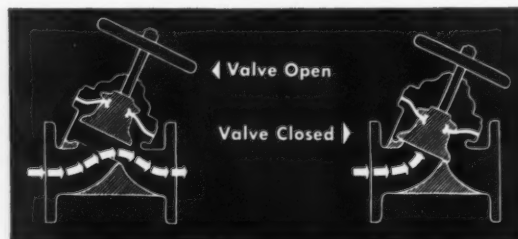
150 Pounds  
water, oil, air, or gas;  
½ through 4-in. sizes

125 Pounds  
water, oil, air, or gas;  
6-in. size only

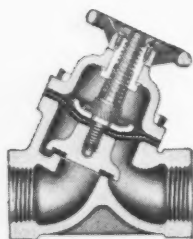
180 Deg. F.  
max. temp.; all sizes

#### HOW IT WORKS

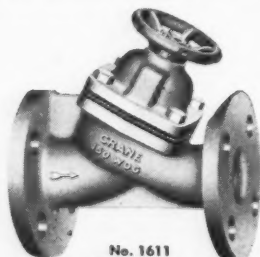
The Crane diaphragm performs one job only—sealing the bonnet against line fluids. The seating member is a separate circular flat face disc, firmly attached to the stem and joined to the diaphragm with a special leakproof connection. This independent seating arrangement permits positive shut-off of flow, even in case of diaphragm failure.



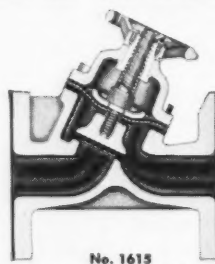
#### NOW AVAILABLE IN SIZES UP TO 6-INCHES



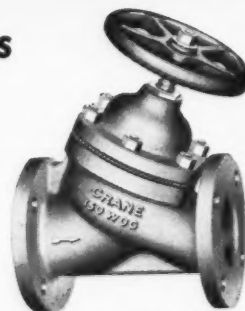
No. 1610  
Screwed ends  
½ to 2-in.



No. 1611  
Flanged ends  
½ to 6-in.



No. 1615  
Neoprene-lined, Flanged ends  
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2½, 3, 4, and 6-in. valves,  
Plain iron or Neoprene-lined,  
have rising, turning stem

EVERYTHING FROM . . .

VALVES  
FITTINGS  
PIPE

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PLUMBING  
AND  
HEATING

FOR EVERY PIPING SYSTEM



## 1,840 mile pipe line...all made from Kaiser Steel

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This large diameter pipe line, requiring high quality steel to withstand great pressures, is being

made from Kaiser Steel plate for Transcontinental Gas Pipe Line Company.

More evidence that the West's only integrated independent steel plant is attracting more industry, more jobs, more wealth to the West!

*It's good business to do business with*

**Kaiser Steel**

*built to serve the West*

**PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES** • plates • continuous weld pipe • electric weld pipe • hot rolled strip hot rolled sheet • alloy bars • carbon bars • structural shapes • cold rolled strip • cold rolled sheet • special bar sections • semi-finished steels pig iron • coke oven by-products • For details and specifications, write: **KAISER STEEL CORPORATION, LOS ANGELES, OAKLAND, SEATTLE**

December, 1949—WESTERN INDUSTRY

# *Annual Review and Forecast Number tells what you may expect from the West in 1950*

"Time out" to review strategy makes good sense in football and in business, too. So we propose to take time out to review the industrial happenings of 1949 and to forecast the probable 1950 trend of industry in the Western half of the U. S.

How will this benefit you? Our January Annual Review and Forecast Number, by presenting an over-all picture of the Western industrial structure, will enable you to relate your individual operation to the general Western economy; furthermore, Eastern concerns (and many Western ones, also) will be helped by a better perspective of the entire Western situation.

Advertising-wise, the January 1950 issue of WESTERN INDUSTRY is certain to offer an especially fine opportunity to identify your product or service with the Western economy because it will have permanent reference value.

## **EDITORIAL CONTENT IN DETAIL**

Specifically, the editorial material will consist of

- A. A series of over-all Western and individual area reviews;
- B. Industry-by-industry reviews of output, technical and mechanical developments;
- C. An analytical study of Western manufacturing methods;
- D. What we believe the future holds.

These articles will not be superficial, skim-the-surface reports. We are probing for facts, and we propose to give you detailed reports on various individual industry situations. For example:

- 1. A production survey on management and operating methods
- 2. Western steel supply and market
- 3. Transportation facilities and freight rate situation
- 4. Water pollution control situation
- 5. The "sustained yield" program in the lumber industry

In our *Industry-by-Industry* reviews, we will give you volume production; summaries of principal technical and scientific developments of the past year; changes in manufacturing or processing methods; developments in the use of equipment—and forecasts of future trends along all these lines.

Among the industries we expect to cover are these:

1. **Metals**  
Iron and steel  
Aluminum  
Copper and brass  
Lead and zinc
2. **Fuel and energy**  
Electric power  
Petroleum and its by-products  
Gas—natural and manufactured  
Coal
3. **Forest products**  
Lumber  
Plywood  
Other by-products, such as industrial alcohol, plastics materials, resins, etc.  
Pulp and paper  
Furniture
4. **Food products**  
Canned fruits, vegetables, fish  
Frozen foods  
Dried fruit  
Dehydrated foods  
Cereals—flour, mill feeds, etc.  
Sugar
5. **Aircraft and aircraft parts**
6. **Automobile assembly and automobile parts**
7. **Shipbuilding, ship repair and small boat building**
8. **Rubber: tires and mechanical rubber goods**
9. **Plastics**
10. **Ceramics**
11. **Electronics, including radios and TV equipment**
12. **Machinery**  
Agricultural implements  
Food processing  
Lumber  
Mining  
Electrical  
Oil well tools
13. **Motion pictures**
14. **Chemicals**
15. **Apparel and textiles**
16. **Printing and graphic arts**
17. **Cement**



## STUDY OF WESTERN MANUFACTURING METHODS

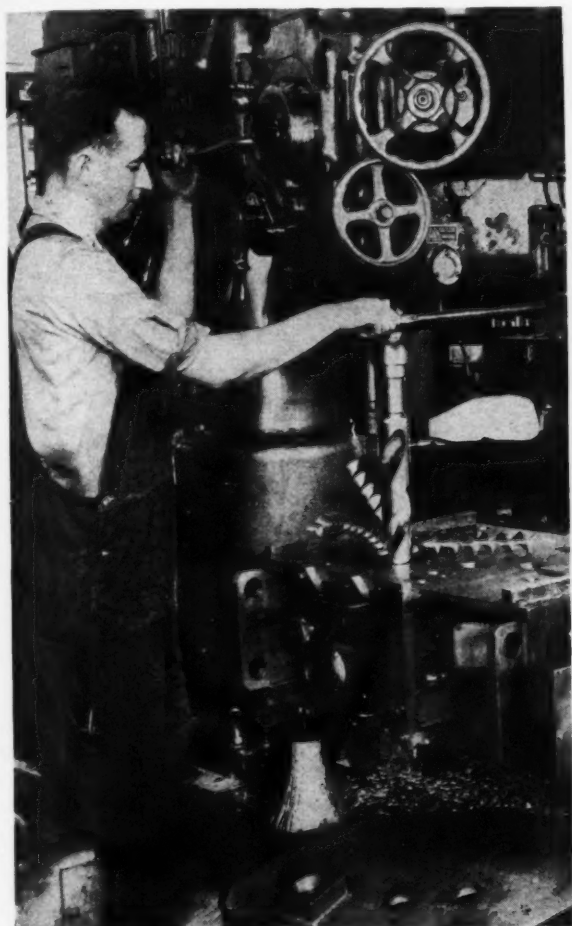
This topic has not been handled specifically by any publication heretofore, so far as we know. WESTERN INDUSTRY will develop a cross-section report of Western conditions through thorough-going research to be done this fall. We believe our findings will show you the West's needs in new methods and equipment, thus help you to plan your Western sales strategy.

## EXTRA ADVERTISING VALUE FOR YOU

Remember, these data will be practically made-to-measure—comprehensive, useable, and valuable to nearly 9,000 top-flight plant executives in the Western half of the U. S., many of whom will *study* this issue carefully.

Remember, too, that no other magazine, Western or national, will cover the Western industrial scene so completely or so analytically.

This is your opportunity to mark your company as an important factor in the Western industrial economy—to tell your product or service story to a stable, fast-growing market.



\* Drilling multiple holes on a production basis was a Westinghouse bottleneck until this adaptation of an adjustable index table was developed. The result was a 60 per cent speed-up.

To Tell Your Sales Story to the West  
**PUT  
WESTERN  
INDUSTRY  
ON YOUR  
National Schedule**

**Plan Your 1950 Schedule to Include  
WESTERN INDUSTRY's Other 2 Special Issues**  
May—Materials Handling Number—Out April 25  
September—Metals Number—Out August 25

**Out Dec. 26—FORMS CLOSE DEC. 5**

Start your 1950 sales campaign in the West with dominant space in WESTERN INDUSTRY's Annual Review and Forecast Number. Wire or mail your space reservation NOW, stating ad size and whether color or bleed. Forms close Dec. 5.

## ASK OUR DISTRICT MANAGER FOR ADDITIONAL INFORMATION

Our District Managers will be happy to supply you with any of the above data units to complete your files, or you can write us direct. No obligation, of course.

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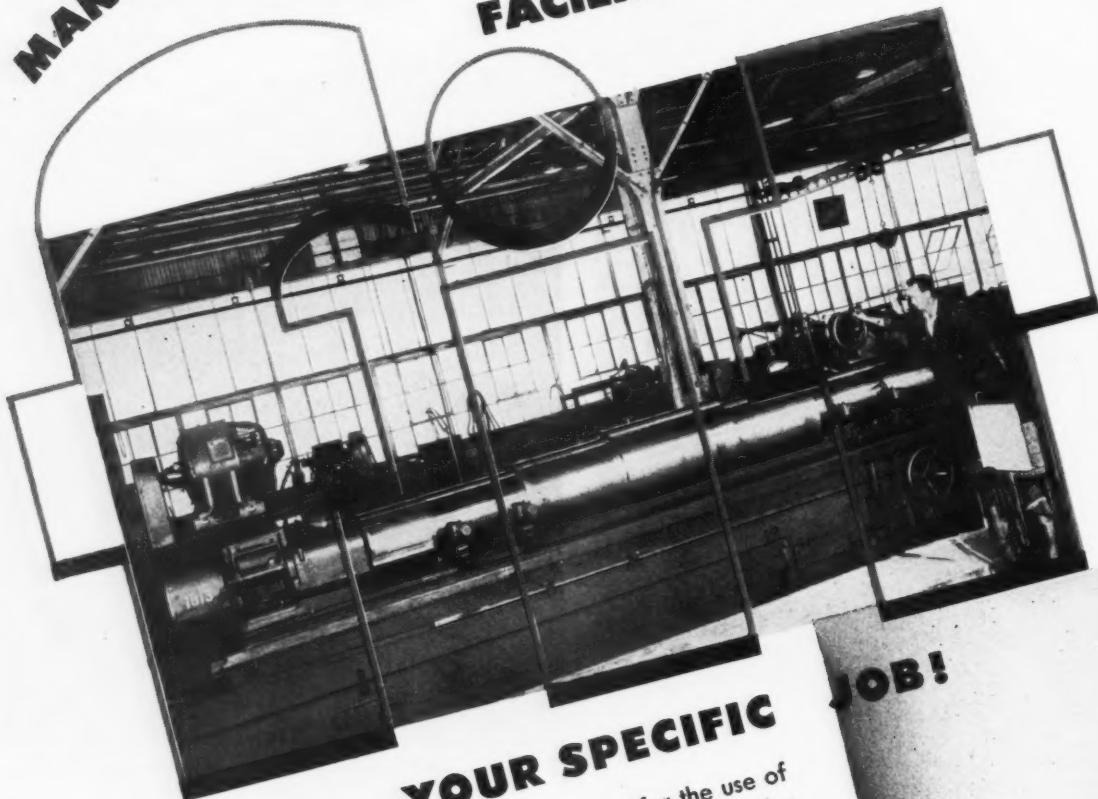
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# MANUFACTURING

# FACILITIES TO



## ...YOUR SPECIFIC

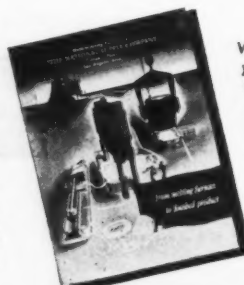
Whether your production demands call for the use of big grinders like the one shown here, or for small grinders for smaller work, National has the solution to your problem. If your product requires anything in steel making, processing or fabricating, National has complete heavy manufacturing facilities to fill your needs. Whether it's forging, casting, heat treating, machining, welding or assembling completely finished products—the facilities of the West's largest completely integrated machinery manufacturing plant are at your disposal. You may need all or only part of these facilities . . . for mass production or for very specialized jobs . . . but the wide variety of modern equipment available at National's Torrance Plant will help your production.

## JOB!



### NATIONAL SUPPLY COMPANY

Industrial Products Division • Torrance, California • Los Angeles Area  
 Ideal Pressed Steel Forgings, Billets and Large Bars Are Distributed by  
**C. B. S. STEEL AND FORGE**  
 3221 E. Slauson Ave., Los Angeles 11, California, Phone LAfayette 0147



Write today for your free copy of the booklet "From Melting Furnace to Finished Product". It describes and illustrates the manufacturing and testing facilities available at the Torrance Plant.

## IN OUR MAILBOX

### What Happened to Reclamation?

Editor, *Western Industry*:

The comments in your recent issue of *Western Industry* on the discussion of Dr. Earl L. Butz of Purdue University on the changing attitude toward the reclamation program, most certainly are thought-provoking.

The five million acres of irrigated land in California were developed without the assistance of the federal government. Our agricultural development came about through the efforts of districts operating under State statutes, together with individuals who pump water to their land. It is quite natural that the attitude in California toward federal development would not be the same as the attitude of folks in some of the other Western states who, comparatively speaking, do not have much agriculture income and are short of the natural advantages which we enjoy.

There is a fundamental principle of reclamation development which must not be forgotten if the reclamation program is to survive; that principle being that the investigation, designing, and construction of reclamation and flood control projects by federal agencies, which are historically qualified to undertake such projects, should be approved only when the projects are economically feasible and capable of repaying the properly reimbursable costs. Moreover, federal agencies should confine their efforts to construction of projects with the operation and maintenance of such projects to be turned over to competent local agencies responsible under California law at completion.

There is increasing evidence that the reclamation program is riding for a fall. Fuzzy projects are being proposed which appear to be founded on shoddy feasibility reports. The recent veto by President Truman on the Vermejo Project Bill and his reluctant approval of the Weber Basin Project are examples of over-extension of the reclamation program. It is a recognized fact that legislation cannot be passed in Congress without the approval of the Bureau of Reclamation—what we have is an administrative agency influencing the legislative decisions which affect the program of the agency.

The intent of the Bureau of Reclamation to double the irrigated acreage in the West most certainly should cause folks who are already producing stuff in surplus some concern. This reclamation program with fanfare and Chambers of Commerce parties is a far cry from the original intent of the Central Valley Project which was to supply supplemental water to acreage which was already in production but which did not have an adequate water supply.

The numerous comments which have been made by reputable people on the waste, extravagance and mismanagement within the Bureau of Reclamation cannot be laughed off as political propaganda. This aspect of the program, too, should cause folks interested in the development of water resources serious concern.

All of these ideas which have been expressed verify the comment which was made

(Continued on page 13)

## EDITORIAL COMMENT

### Under the Electric Blanket

**E**LECTRIC blankets are highly advertised. Excellent sleep-inducers. So much so that we wonder if the electric utilities of the West were not sound asleep under one of them at the time of the recent full-dress rehearsal put on by the Democrats at San Francisco, when they told their story of what the Democratic party was going to do for the West, particularly along the lines of public power development.

Considerable time was spent in questions and answers. The affair was wide open to the public, and there was a large audience, many of whom seemed to be farmers, and even if they probably leaned strongly toward public power, the majority apparently were seeking information about the future water and power situation. Why the power companies did not have someone there to challenge, in dignified and restrained fashion, some of the governmental utterances, and let the audience know that the utilities also have a bit of right and logic on their side, is beyond comprehension. The spokesman might not have gotten very far, but at least he could have made it apparent that there are two sides to the public power controversy, not just the governmental story.

At the annual meeting of the California Manufacturers Association in Los Angeles early in October, Harold Quinton, executive vice-president of the Southern California Edison Company, closed his talk on power developments with as clear and forceful an explanation of how the public has benefited at the hands of the privately-owned public utilities as we ever have heard. But when asked by a *WESTERN INDUSTRY* representative why this picture was not presented at the Democratic meeting at San Francisco his answer was, "It was a political meeting and they probably would not have let us in."

Tsk! Tsk! No wonder the power companies take such a beating from the public ownership advocates. Snap on the electric blanket switch, get nicely tucked in, and let's have a little more sleep!

### The Very Idea!

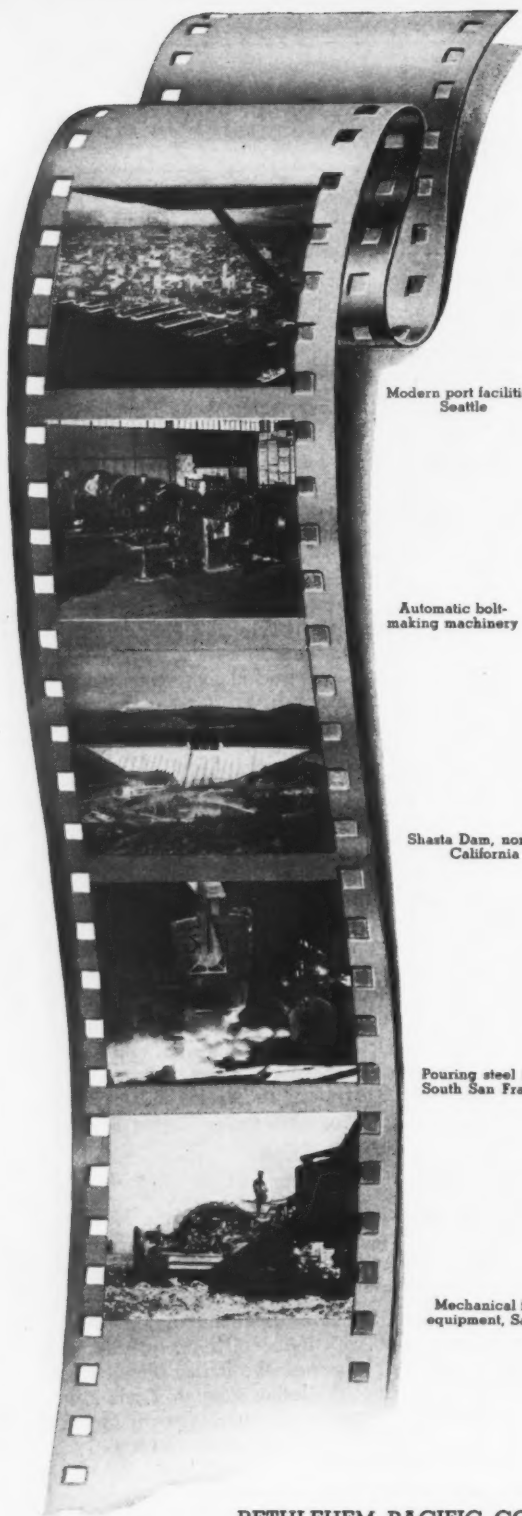
**F**ORMALLY dedicating Foreign Trade Zone No. 4 at Los Angeles on September 14, Secretary of Commerce Charles Sawyer described the function of a foreign trade zone by the following example:

"If a businessman in California should desire to mix California cottonseed oil with Italian olive oil for shipment to an importer in South America, the Italian olive oil can be brought into Los Angeles Harbor Foreign Trade Zone, mixed with cottonseed oil and re-exported to South America with no import duty having been paid on the olive oil."

Why, Secretary Sawyer!

### Self-Reliance to the Rescue

**H**ATS OFF to the people of Crescent City, California. The Army Engineers are building a breakwater for their harbor, but regulations require that the community match it with a wharf. Lacking funds, business people donated lumber, trucks, nails, and other materials, and the people supplied the labor. At last reports the wharf was out 600 feet and still going strong.



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Seattle

Automatic bolt-  
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Shasta Dam, northern  
California

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South San Francisco

Mechanical farm  
equipment, Salinas

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# MAIL BOX—(Continued from page 11)

to the House of Representatives last year by Congressman Forrest Harness of Indiana when he reported on the results of the investigation of the Bureau of Reclamation. Among other things he said, "The Reclamation Service since its inception has played an indispensable part in the development of the vast arid and semi-arid areas of our Western states. Until the advent of the present clique in power which undertook to make the Service a tool for the further entrenchment of bureaucracy, that agency enjoyed the highest reputation for competence and integrity. In recent years, however, experienced engineers qualified to administer the service efficiently have been supplanted by propagandists who have prostituted the agency for their own selfish bureaucratic ends."

It is not surprising that many good people who are sincerely interested in the development of the West are deeply concerned over the trend which the reclamation program is taking.

BERT L. SMITH, Secretary  
Water Economics Committee  
Irrigation Districts Ass'n  
of California

## He May Be Right, But—

Editor, *Western Industry*:

I hesitate to make any detailed comment on the remarks of Professor Earl L. Butz which you have included in your editorial comment, because I don't like to evaluate individual sentences when taken out of their complete context. However, the statements are so unusual, coming from one who would be expected to have made a careful study of irrigation, and so damaging because of the impression they create that I feel that they call for some kind of comment.

This is the first time that I have ever come across the use of the terms "areas of natural production" in contrast to "unnatural and high-costing areas." Perhaps this is a new terminology that has been developed at Purdue University. If so, I think it needs a great deal more in the way of explanation and justification.

Apparently the professor regards the application of water through the use of canals and dams, etc., as an unnatural way of farming. Actually there is no basic distinction between such capital investments and the investment for a tractor, a plow, or a harvester. Farmers, since time immemorial, have been using various degrees of capital investment to increase the productivity of their land.

To come along at this stage and refer to such devices as unnatural seems to me to be simply confusing. Perhaps it is only the expression of a bias toward a certain type of agriculture with which the gentleman from Indiana is more familiar. Actually, he would probably be more correct to distinguish between historic vs. prehistoric agriculture, because I am confident that would have to go back at least to prehistoric times if he wished to exclude the use of very large-scale irrigation projects on arid and semi-arid lands. I am reminded of the very great efforts in the field of irrigation that have been expended for years in the Nile Basin.

Incidentally, the Egyptian government has developed an approach to the allocation of costs from which we might take a lesson. At the recent conference on Conservation and Development of Natural Resources, sponsored by the United Nations at Lake Success,

(Continued on page 15)



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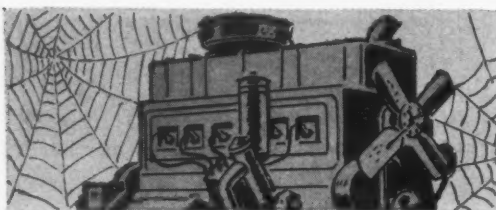
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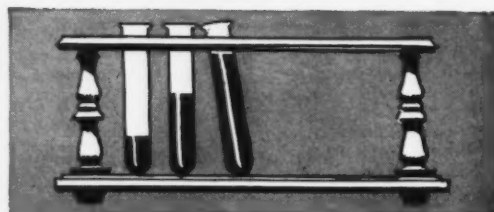
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\*T5X gets its distinctive color from an exclusive ingredient that helps give the oil its remarkable stability.

## MAIL BOX—(Continued from page 13)

I was interested to learn that the Egyptian government has approached the problem of allocation by simply regarding these projects as development projects which inure to the general welfare of the entire country.

Perhaps we, too, will some day realize that without irrigation, entire areas such as the Central Valley in California with all of its high value urban developments, the Yakima area in Washington, and the Boise and Snake River areas of Idaho would still be modest rural developments supporting a small fraction of the present population.

The professor fears for the results when farmers discover that the effect of the new irrigation will be to increase output. It has always been my feeling, and is my feeling today more than ever before, that the principal over-all objective of our entire economic system is to increase productivity. This applies to agriculture as much as it does to any other activity.

The fact that we have temporary surpluses in certain lines should not blind us to the over-all need of the entire world for additional food supplies. It seems to me that Professor Butz has picked a very poor example when he speaks about too much production in livestock and dairy products. Certainly the agricultural industry is capable of finding ways and means for the profitable distribution of almost any amounts of these products that American farms are in a position to produce.

Of course, I cannot quarrel with the professor when he says that we should not approve "projects that are obviously marginal" but I do think that it would be more proper for him to level constructive criticism at these individual and "obviously marginal" projects.

I can see nothing "deplorable" in allocating an ever increasing share of multiple-purpose projects costs to non-reimbursable items such as flood control, recreation, wild life and game development provided that allocation is justified. However, I would remind the professor that these allocations are not made simply for the purpose of justifying "another irrigation project."

The way he has stated his position indicates clearly that he has missed the point entirely on the fundamental nature of a multiple-purpose project. He apparently is thinking only of *multiple-financing*. Actually, when we use the term multiple purpose we really mean multiple purpose and not simply irrigation. In many instances flood control and power development are of more interest than irrigation. Far from being a subterfuge, as Professor Butz surmises, these projects are an attempt to take care of all of the water control problems within a single river basin and to do it in a more economical way than would be possible under a single purpose approach.

Finally, I am completely baffled by the suggestion of your own editorial writer that "if government financed irrigation projects are largely eliminated, it may be a blessing in disguise." It is simply impossible for me to understand how a magazine dedicated to the promotion of Western industry can make such a statement.

I will be very anxious to know what type of approach you would care to substitute either for the long run or the short run. I realize that some readers can be frightened

(Continued on page 17)

## ILLUMINATION IN THE MAKING



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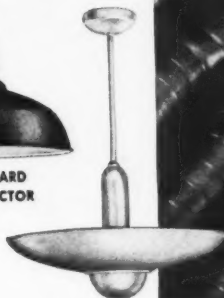
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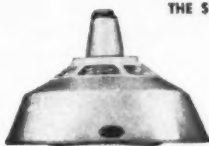
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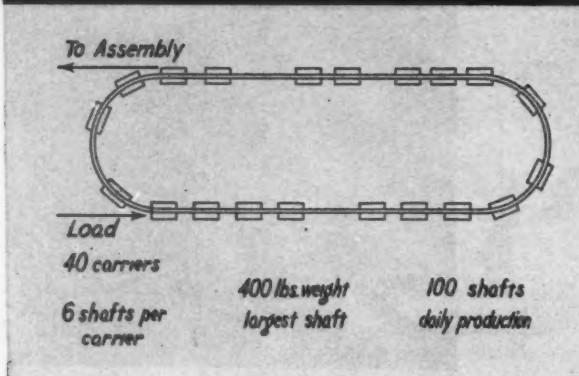


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# MAIL BOX—(Continued from page 15)

by such phrases as the prospect of Western development "being tied on the apron strings of federal appropriations." However, most thinking people will recognize immediately that there is nothing else that we can place our hopes in.

River basin development projects of the scope that is required to do this job in the most economic manner and at the least expense to the general public in the long run, are of such magnitude that they must be financed through the united efforts of all the persons involved, which means, of course, that we must use the agency of the federal government.

FREDERICK ARPKE  
Economist  
Bonneville Power Adm'n  
Portland, Oregon

## CALENDAR OF MEETINGS

- December 2-3—Oregon Motor Transport Association, Multnomah Hotel, Portland. Contact C. O. Knowlton, Weatherly Bldg., Portland, VE 4105.
- December 5-6-7 — Northwest Frozen Foods Association, Multnomah Hotel, Portland. Contact E. M. Burns, Northwest Frozen Foods Assn., Title and Trust Bldg., Portland, Ore. BR 7074.
- December 7-8 — All-Idaho Congress, Hotel Boise, Boise, Idaho. Contact State Chamber of Commerce, 524 Idaho Bldg., Boise.
- December 8-9-10—Western Forestry & Conservation Association, Multnomah Hotel, Portland. Contact Carl V. Hersey, U. S. Bank Bldg., Portland, Ore., AT 5909.
- December 28-30 — Pacific Coast Economic Association, joint meeting with American Accounting Association, West Coast Group, Mills College, Oakland, California.
- December 28-29 — Pacific Coast Economic Association, Oakland, Calif. Contact Perry Mason, 113 South Hall, U. of C., Berkeley 4, Calif.
- Jan. 18-20 — American Management Assn., general management conference, St. Francis Hotel, San Francisco.
- Jan. 19-21—Colorado Society of Engineers, Shirley-Savoy Hotel, Denver
- Jan. 20-21—Idaho Society of Engineers, Boise
- January 27—West Coast Lumbermen's Association, at Portland, Ore. Contact H. V. Simpson, 1410 S.W. Morrison, Portland, BE 5177.
- February — Oregon State Bottlers Association, Benson Hotel, Portland, Ore. Contact Earl Tweedmeyer, B-1 Bottling Co. of Oregon, 1327 S.E. Division, Portland, EA 0191.
- February 24—California Stripper Well Association, at Los Angeles.
- March—Pacific N.W. Advisory Board, at Portland, Ore. Contact F. T. Westmeyer, 624 Vance Bldg., Seattle, Wash.
- March 12-14—Northwest Cannery Association (corrected date), Multnomah Hotel, Portland, Ore. Contact A. L. Hobart, 514 Board of Trade Bldg., Portland, AT 7569.
- March 17-18—Western Highway Institute annual membership meeting, Hotel del Coronado, San Diego.
- April 17-19—Pacific N.W. Bakers Association, Multnomah Hotel, Portland, Ore. Contact J. C. Crawford, Weatherly Bldg., Portland, CA 6450.
- April 22-28—American Society of Civil Engineers, at Los Angeles.

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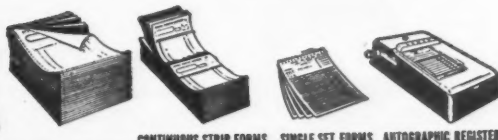
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# THE WESTERN OUTLOOK . . . News • Statistics

1

**Some upturns appear, also some firming up; Winter unemployment load inevitable accompaniment of Westward population movement; Good auto, bus and truck registration increases entail more service facilities**



**C**RYSTAL ball gazers are still rather hard put to it to figure out what lies ahead. For example, lumber and plywood were taking a big beating earlier in the year; now both have perked up considerably and prospects look good for the immediate future. Aluminum is another line where things have been good. Most other products record a dropping off in volume, but upturns may lie ahead for them also.

Because people are coming West faster than job opportunities are opening up, a big unemployment load is due in the next few months. In some cities last winter the situation was relatively acute, and it probably will be more so this winter, although some forecasts indicate a slowing down in Westward migration that may temper the situation somewhat. On the other hand the total Pacific Coast manufacturing employment for September was only 5 per cent below the same month in 1948, which seems to be a reassuring sign.

One of the most difficult factors to evaluate is the increasing demand set up merely by virtue of the Westward population movement. People have to—and do—eat, sleep, wear clothes, ride in automobiles and buses, use trucks, get housing of some kind or other, regardless of how plentiful or scarce jobs may be.

For example, take the preliminary estimates by the U. S. Bureau of Public Roads on motor vehicle registrations for 1949.

These show an increase of 328,487 automobiles in the eleven Western states over last year, and 89,466 more trucks and buses, which obviously mean more gas and oil consumption, more replacements of parts, more repair facilities, more garaging space, more parking meters (and, of course, longer hunts for parking spaces). Detailed figures are as follows:

State	Automobiles		Trucks and Buses	
	Reg. 1948	Est. 1949	Reg. 1948	Est. 1949
Arizona	161,547	175,000	49,450	53,000
California	3,194,226	3,350,000	554,081	590,000
Colorado	354,748	375,000	107,588	115,000
Idaho	156,979	168,000	60,590	65,000
Montana	145,800	155,000	69,983	76,000
Nevada	47,328	50,000	13,671	14,000
N. Mexico	126,458	140,000	47,160	51,000
Oregon	448,545	485,000	116,232	128,000
Utah	64,538	177,000	40,575	43,000
Washington	623,913	670,000	147,815	159,000
Wyoming	82,431	90,000	30,389	33,000

## Business Activity Indices in Per Cent of 1935-1939 Average

(Taken as basis of 100)

	July	August	Sept.
1 Arizona	325.7	316.0	314.0p
2 California	221.5	219.5	220.4p
3 So. Calif.	267.8	268.8	272.0p
4 Pacific N.W.	208.0p		
5 Puget Sound	199.3		
6 Inland Empire	207.6		
7 Lower Columbia	218.2p		

- 1) Valley National Bank (Phoenix) index, based on a weighted composite of retail sales, agricultural income, and employment in mining, manufacturing and construction, and seasonally adjusted. 1940 = 100.
- 2) Wells Fargo Bank & Union Trust Co., index based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonally).
- 3) Security-First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits, 5; agricultural city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.
- 4) Index compiled by Bureau of Business Research, University of Washington. Basis of compilation not indicated.
- p) Preliminary estimate.

## MANUFACTURING EMPLOYMENT

Estimated Number of Employees—Source: U. S. Bureau of Labor Statistics and State Agencies

	WASHINGTON		OREGON		CALIFORNIA		TOTAL PACIFIC	
	1948	1949	1948	1949	1948	1949	1948	1949
July	179,908	175,650*	153,200	136,600	742,100	711,400	1,075,200	1,023,650
August	183,100	171,500*	156,000	138,200	772,800	757,900	1,111,900	1,067,600
September	189,900	173,700	121,500	138,700	802,900	752,600	1,114,310	1,065,900

\* Preliminary.

	MONTANA		IDAHO		WYOMING		COLORADO		NEW MEXICO		ARIZONA		UTAH		NEVADA		TOTAL MTN.	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
July	18,200	18,800	24,900	21,000	6,900	6,900	36,500	36,500	9,800	10,250	15,700	14,400	29,500	30,000	3,400	3,100	148,000	148,000
August	18,000	18,900	25,400	21,700	6,900	6,400	36,500	36,500	9,850	10,300	15,100	14,200	29,400	29,700	3,400	3,100	148,000	148,000
September	18,100	19,100	26,700	21,700	6,800	6,200	36,500	36,500	9,850	10,500	13,900	14,200	29,400	29,700	3,400	3,100	148,000	148,000

\* Revised.

## INSURED UNEMPLOYMENT

(Under all programs; figures in thousands. From Social Security Board)

Week ending	Ariz.	Colo.	Idaho	Mont.	Nev.	N. Mex.	Utah	Wyo.	Total Mtn.	Calif.	Ore.	Wash.	Total Pacific
July 30	8.5	6.7	3.0	2.5	2.2	4.0	6.0	.8	33.7	262.5	22.0	36.8	321.5
Aug. 27	7.3	5.4	1.4	2.3	1.7	3.0	4.7	.6	26.4	223.0	18.8	32.2	274.0
Oct. 1	6.1	4.0	2.3	2.0	2.0	2.2	4.4	.5	23.5	192.9	17.8	31.6	242.3

Curiously enough, the BLS index of wholesale prices for September, as reproduced on the next page of the "Western Outlook" section, shows a tendency to firm up rather than decline, and wholesalers' sales, for the West at least, appear to have a rather spotty inclination to firm up also.

(Continued on page 21)

## BANK LOANS

Industrial, commercial and agricultural  
(In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

1949	
April	2,099
May	2,033
June	2,003
July	2,416
August	1,920
September	1,956

## BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

1948		Net Demand Deposits	Time Deposits
April	8,421	6,110	2,311
May	8,366	6,109	2,257
June	8,322	6,136	2,186
July	8,321	6,154	2,167
August	8,453	6,178	2,275
September	8,626	6,178	2,448

## FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1948	1949	1948	1949
April	508,140	489,843	271,524	259,297
May	556,333	631,651	350,986	348,190
June	593,121	566,042	303,680	280,659
July	588,842	532,120	287,565	260,419
August	766,432	681,602	376,674	341,628
September	628,156	550,529	321,399	284,265

\* 5-week period.

## TRUCK TRAFFIC

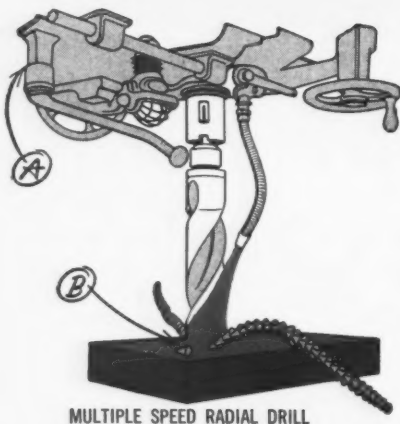
(Number of commercial trucks entering state through border checking stations)

	—CALIFORNIA—		—ARIZONA—	
	1948	1949	1948	1949
April	13,776	14,755	18,133	22,129
May	14,741	15,681	19,059	21,182
June	14,816	15,365	19,312	21,504
July	14,763	14,774	19,557	21,465
August	15,203	16,207	19,078	21,004
September	14,777	15,727	18,880	21,256





### Case 1146—Selecting the Correct Cutting Fluid

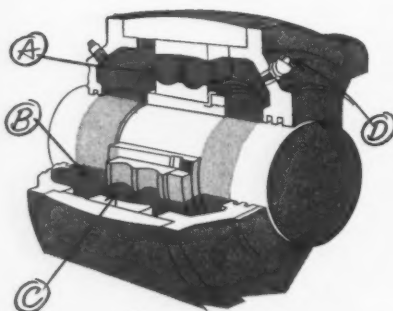


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In tests on machine tools of all different types, the Calol Cutting Fluid recommended for each operation produced fine surface finish on work. This is because recommendations for Calol Cutting Fluids are made from actual working results — tests made on a special drillpress, the Drilling Torque Tester — and the results recorded by electronics. Calol Cutting Fluids come in four general classes: mineral oils, ready-mixed compounded oils, concentrates and soluble oils.

- A. Made for every machining operation — from toughest broaching to simple grinding.
  - B. Lubricating, cooling and flushing qualities assure longer tool life and better work finish.
- Calol Cutting Fluids also give maximum rust protection to machine tools and work. The soluble oils in the line mix with water easily and form strong, stable emulsions.

### Case 1147—Lubricating Bearings Carrying Extreme Loads



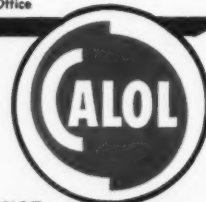
HEAVY-DUTY INDUSTRIAL BALL BEARING

In tests by a bearing company, Calol E.P. Roller Grease carried bearing loads in excess of 20,000 pounds per square inch, more than twice the load-carrying capacity of ordinary greases. For anti-friction or plain bearings. Comes in three grades and two types: Nos. 0, 1X and 2X. The "X" type has additional compounding to impart extra stringiness, and extra adhesiveness to withstand washing action of water.

- A. Extreme-pressure additives assure lubrication under extreme shock load conditions.
- B. Resists extreme temperatures — has lubricated satisfactorily in bearing temperatures of more than 200° F.
- C. Non-corrosive to any bearing metal . . . will not harm rubber, neoprene or plastic bearing seals.
- D. Pumps easily in low temperatures . . . may be used in all grease pressure systems.

Trademark Reg. U. S. Pat. Office

STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush St., San Francisco 20, California.





# THE WESTERN OUTLOOK . . . News . Statistics

# 2

## WHOLESALESALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year.  
From Bureau of the Census.

### MOUNTAIN

	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm prod.	Change	General Hardware	Change
March	881	-5	3,582	+1	..	..	..	..	..	..
April	762	-11	3,239	-15	..	..	..	..	1,914	-13
May	849	-8	3,546	+1	236	-4	..	..	..	..
June	854	-18	3,233	-19	282	-4	..	..	1,694	-10
July	812	-15	3,231	-13	196	-14	..	..	1,958	-24
August	2,208	-2	3,432	-7	473	+35	..	..	2,212	-3
March	2,315	-11	13,632	-19	..	..	9,163	..	6,284	-16
April	2,320	-10	10,629	-20	214	-24	3,911	..	6,974	-21
May	2,293	-11	11,705	-5	267	-23	7,810	..	6,284	-18
June	1,695	-13	13,106	+1	211	-31	5,280	..	5,866	-23
July	2,440	-13	10,328	-21	196	-14	10,793	..	4,842	-25
August	2,430	-20	12,372	-18	..	..	11,182	..	5,908	-26

\*Full-line wholesalers.

## CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics  
100 = 5 yr. Avg. 1933-39

	Los Angeles	San Francisco	Portland	Seattle	Denver
Apr. 15	171.2	..	177.6	..	169.9
May 15	169.6	..	..	172.5	..
June 15	168.7	173.7	..	..	..
July 15	167.2	..	175.3	..	167.8
Aug. 15	166.8	..	..	170.8	..
Sept. 15	167.1	173.0	..	..	..

	Industrial Supplies	Change	Lumber & bldg. mat.	Change	Mch. equip. and supplies excl. elec.	Change
March	1,085	-18	634	-30	..	..
April	1,723	-5	630	-24	..	..
May	1,717	-12	1,717	-14	782	-8
June	1,639	-22	1,643	-16	544	-33
July	1,858	-13	1,585	-28	587	-35
August	2,065	-14	1,650	-22	328	-29

## INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

Bureau of Labor Statistics, Washington 25, D.C.  
(1926 = 100)

	Farm Products	Food	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Fur- nishing Goods	Miscella- neous	ALL COMMODITIES
1949											
July	165.8	161.3	177.6	138.2	129.9	167.4	189.1	118.1	145.2	110.2	153.4
August	162.3	160.6	179.0	137.9	129.7	168.7	188.2	119.7	145.0	109.8	153.0
September	163.1	162.0	181.1	139.0	130.6	168.4	189.4	117.7	142.9	109.6	153.7

## INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

INDEX—Southern, 1937-39 daily average—100 with seasonal adjustments; compiled by Federal Reserve Bank																
	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
June	362	335	410	368	316	308	345	325	357	344	375	355	347	309	454	408
July	358	323	404	355	310	290	356	306	354	349	382	350	327	295	478	420
August	361	335	416	373	312	296	367	322	321	349	374	360	342	308	469	407
September	349	325	397	358	317	293	344	311	290	330	374	356	332	308	464	410

(Continued from page 19)

Apparently the West is no worse off than the rest of the country, perhaps a little better. We have been less affected by the steel strike, and the coal industry troubles will only affect the West indirectly. On the other hand, both crude oil and gasoline are beginning to run out of our ears.

Taxable sales in California for the second quarter of 1949 were only 1.14 per

cent below the same period in 1948, according to the California State Board of Equalization, to whom the state retail tax is reported.

The distribution of second-quarter sales by type of business shows that motor vehicle sales, which soared to an all-time high of \$407,504,800, accounted for almost 15 per cent of the total; general mer-

chandise store sales exceeded \$300,000,000 and represented just under 11 per cent of all taxable transactions; sales of apparel shops climbed to \$183,580,280, or over 6 1/2 per cent of the total. Building materials accounted for 12 1/2 per cent of the quarter's taxable transactions, while sales by retailers of household furnishings and appliances approached 5.7 per cent.

## Electric Energy

Federal Power Commission's reports show that consumption of electricity is gaining faster than elsewhere in the country. Region 7, comprising the Pacific Northwest, Idaho, Utah, and Montana, energy and peak demand in October were 10 per cent and 13 per cent above last year, respectively, while in the Pacific Southwest comprising California, Nevada, Arizona, the increases were 8 and 9 per cent. Because of low stream run-off in the Northwest, 70,000 kw. of

interruptible load, going mostly to aluminum plants, was cut off in October. New additions to steam-generated supply in the same month

were the cities of Burbank, California, 20,000 kw., and Pasadena, 35,000 kw. plus 60,000 kw. from Southern California Edison Company.

## ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1948	1949	1948	1949	1948	1949	1948	1949
April	1,232,358	1,267,957	1,618,678	1,655,765	1,424,480	1,736,576	3,043,158	3,392,343
May	1,248,630	1,219,907	1,555,721	1,658,316	1,559,727	1,857,778	3,115,448	3,516,094
June	1,453,761	1,470,751	1,455,985	1,704,943	1,746,341	2,082,002	3,202,326	3,786,945
July	1,564,700	1,445,233	1,662,191	1,681,142	1,946,774	2,176,358	3,608,965	3,857,500
August	1,502,169	1,561,811	1,723,442	1,812,839	2,060,942	2,198,169	3,784,384	4,011,008
September	1,471,029	1,533,084	1,698,555	1,789,376	1,859,568	1,929,100	3,558,123	3,718,476

\* Revised.

## Oil

Surplus of oil products on the Pacific Coast now has spread to embrace not only residual fuel oil, but virtually all other oils and fuels as well, the Oil Producers Agency declares. Western wells are now producing 115,000 barrels a day more than requirements in this area.

Stove and diesel oil inventories are about a third greater than last year, but demand is less. With the peak gasoline-burning season now past, the West has about 50 per cent more motor

fuel in storage than a year ago—although taxable sales on the Pacific Coast hit a new high this summer, running about 3 1/2 per cent higher than in 1948.

(Continued on page 23)

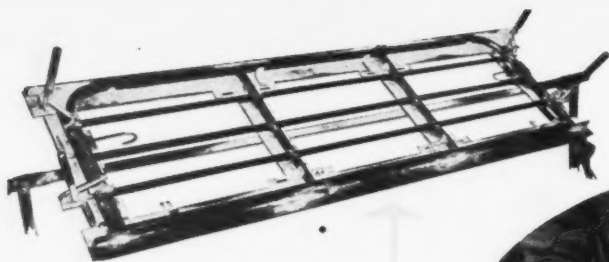
## PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)

(From Bureau of Mines)

CRUDE PRODUCTION (Barrels, daily avg.)	TOTAL DELIVERIES (Thousands of barrels daily)							
	GASOLINE		GAS OIL & DIESEL		HEAVY FUEL OIL		ALL PRODUCTS	
	1948	1949	1948	1949	1948	1949	1948	1949
949,000	336	368	141	152	369	386	1,036	1,056
942,000	353	364	129	120	372	370	1,016	1,017
927,000	362	372	141	126	366	384	1,021	1,001
921,000	350	380	125	132	379	359	1,023	994
907,000	350	374	130	131	368	311	1,020	979
896,000	373	374	126	109	376	317	1,023	969





Safety slide for hospital bed. 42 half-inch long tack welds plus 6 continuous welds are made on .042" cold rolled steel in 23 minutes, including assembly time.

# SIMMONS STEEL FURNITURE *is Bronze Welded*

**PRODUCT IS STRONGER**

**ASSEMBLY IS FASTER**

**COSTS ARE LOWER**

## COMPARATIVE SAVINGS:

Using ANACONDA 997  
(Low Fuming) Bronze  
versus steel welding  
rod on same operations

**40 to  
60%**

The Simmons Company adds: "Under actual testing, we have a much stronger unit today than if we were using steel welding, due to the fact that the lower bronze-welding temperatures do not weaken the joint areas."

If you do either production or repair welding, write for Publication B-13. It covers all ANACONDA Welding Rods, their applications and procedures for their use. The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

You can depend on  
**ANACONDA**

BRONZE WELDING RODS



Bedside cabinet. 2 reinforcing welds, 2 inches long, are made on 20-gage cold rolled steel in 54 seconds.



Steel dresser. 36 welds are made on 20- and 22-gage cold rolled steel. Total time, including assembly, is less than 6 minutes.



Steel chair. 56 ANACONDA 997 (Low Fuming) Bronze welds are made on each chair, with components aligned in welding fixture.

# THE WESTERN OUTLOOK . . . News . Statistics

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(Continued from page 21)

Only bright spot is the fact California bunker fuel is priced about 25 cents a barrel below Gulf of Mexico port rates, with the prospect that skippers may again be encouraged to arrive in Western ports with empty fuel bunkers.

Coast producers are planning to send 5,000,000 barrels of heavy fuel oil to the East coast this winter in the first such big movement since the late thirties. The movement will be equivalent to approximately 50 tank ship loads, most of it destined for industrial power use and steamship operation.

Standard Oil of California's Chairman Collier,

pointing out that voluntary shut-backs have curtailed about 50,000 barrels of daily production already this year, said the Pacific Coast industry could balance supply with demand if another 75,000 barrels daily could be kept in the ground instead of pumped out to glut the market.

Three U. S. companies are exploring North Dakota's oil possibilities, following belief of some geologists that the same formations underlying Alberta's enormous gas and oil reserves extends into that state. One company alone has about 500,000 acres under lease.

## NATURAL GAS (CALIFORNIA)

(Compiled by Roy M. Bauer, gas supply supervisor, Southern California Gas Company)

	— Number of Consumers —		*Utilization (in thousands of cubic feet)			
	Domestic and Commercial	Industrial	Domestic and Commercial Sales	Industrial Sales	Electric Generation	Net Receipts from Producers
1949						
January	2,562,162	5,754	39,696,269	5,130,286	2,009,387	54,385,974
February	2,579,818	5,751	39,829,298	6,000,347	2,314,215	44,446,596
March	2,590,038	5,766	31,154,708	9,567,485	2,993,925	44,722,443

## Coal

Except for captive mines of struck steel plants, bituminous coal production in the intermountain area is on its seasonal rise. The brief strike against commercial mines served to stimulate purchasing. In Utah the industry is operating normally with the exception of Geneva Steel Co. mines, which employ about 1,000 men.

### BITUMINOUS COAL AND LIGNITE

(In thousands of tons—From Bureau of Mines)

	Colo.-N. Mex.		Wyoming		Utah	
	1948	1949	1948	1949	1948	1949
June	509	288	480	327	568	356
July	351	195	348	336	508	265
August	539	404	483	459	542	527
Montana Wash.-Alaska						
June	191	204	126	100		
July	220	166	95	74		
August	223	280	120	96		

## Steel

Because Bethlehem and U.S. Steel were the only operators on the Coast to shut down, and Bethlehem resumed operations late in October, the steel strike was not felt very much in the West. Warehouses were well stocked and consequently consumers were all taken care of, but if strong demand continues, it may mean

depleted inventories for several months to come and the necessity for many steel users to operate on a hand-to-mouth basis. Bethlehem picked up considerable business for the Sparrows' Point mill as the result of other eastern producers being down. The Kaiser people have taken steps to protect their Fontana production by the purchase of additional coal reserves in the Sunnyside district of Utah.

### IRON AND STEEL

Western Area of the United States

From American Iron and Steel Institute (in net tons)

	Pigiron Output		Percent of Capacity		Steel Output		Percent of Capacity	
	April	May	June	July	August	September	October	November
April	216,431	90.3	414,794	95.8				
May	194,525	78.6	405,170	90.6				
June	170,548	71.2	351,917	81.3				
July	170,475	69.1	338,861	76.0				
August	178,866	72.3	372,812	83.4				
September	162,007	67.8	328,618	76.1				

### ALLOY STEEL

(In thousands of bbls.; from U. S. Bureau of Mines)

	Output		Carbon Ingots, Hot Topped*	
	April	May	June	July
April	5,068	12,999		
May	4,423	9,690		
June	4,990	7,051		
July	4,452	6,828		
August	4,177	7,182		

September figures not available.

\*Included in total steel.

## Nonferrous Metals

The nonferrous metal production picture has changed very little from last month. Major mines are operating at a normal rate and smaller mines which closed when metal prices fell are generally still closed.

### Aluminum

The usual fall seasonal rise in aluminum is figured to be within 80 per cent of last year, with business good in all lines, utensils, appliances, automotive and construction. Aircraft

is a picture all its own, unrelated to other demands for aluminum, and it has rocked along fairly well. On the unfavorable side, the steel strike has slowed down demand because of the combined use of aluminum and steel in so many

jobs. Also, the winter curtailment of electric power in the Pacific Northwest has forced all three operators, Alcoa, Kaiser, and Reynolds, to shut off one potline each in their reduction works.

## NONFERROUS METALS

(Production in short tons. From U. S. Bureau of Mines)

	ARIZONA	UTAH	MONTANA	NEW MEXICO	NEVADA	WEST'N STATES
Copper	22,600	18,420	3,890	5,187	3,740	54,666
Lead	2,800	3,720	1,160	201	868	19,007
Zinc	6,160	2,575	3,340	913	1,248	25,172

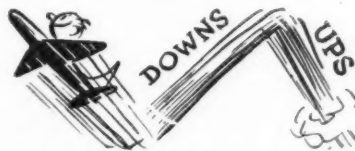
## Aircraft

Big changes of the past year have left their imprint deep in the record of the aircraft industry. Sales of personal aircraft have continued their dive from 35,000 planes marketed in 1946, to an estimated 6,000 this year.

Northrop's annual statement shows the company went from \$520,000 in the black a year ago, to \$3,800,000 into the red this year, reflecting the switch in Air Force strategy to the B-36 program, which overnight reduced Northrop's backlog of orders by \$90,000,000 and junked nearly a million dollars' worth of developmental expense on the Raider C-125 light assault transport.

Douglas, on the other hand, rolled up the biggest profits in its history, thanks to success of the DC-6 and to sizable additional orders for military spare parts. Nearly 95 per cent of Douglas' orders on hand represent military business.

Solar has just received orders for \$2,000,000



worth of jet engine parts and will divide the work between its San Diego and Des Moines plants, keeping production at current levels. Consolidated-Vultee is hiring moderately at San Diego to handle new subcontracts from Boeing for B-47 tooling work. Firestone now is building fuel cells for the B-36 and other military craft by a new process, using nylon glass fiber, natural and synthetic rubber.

North American has flight-tested its first trainer designed and built since V-J Day, the T-28, tailored to train pilots for today's advanced high-speed bombers and fighters. The Air Force has ordered 288 of the craft.

## AIR FREIGHT

(In pounds. Figures from airports.)

	Los Angeles*		San Francisco		Oakland		Portland		Seattle	
	In	Out	In	Out	In	Out	In	Out	In	Out
August	1,292,300	1,260,319	1,608,977	987,110	111,884	241,723	...	...	437,172	989,494
September	1,435,127	1,343,327	...	...	97,912	249,726	...	...	446,615	932,605

(Continued on page 25)



## 25,000 yards handled...or 5 times normal belt life expectancy

This Conway Mucking Machine is at work on a tunneling job where the pace is torrid. It's slam bang all the way for this granite-devouring monster that moves with amazing speed and agility. The largest of its type ever built, this machine will load a muck car to overflowing in little more than a minute.

One major operating problem was to secure conveyor belts that would stand battering abuse. Normally, Mucker Belt life is measured in yardage handled—averaging from 5 to 7 thousand yards. This Pioneer Mucker Belt has moved over 25,000 yards—and its condition indicates it's good for many more yards.

This 38" belt has specially compounded covers, breaker strips, top and bottom, and super-carass ply construction. Special edges are built to prevent fraying even though traveling at high speed through granite chips that become wedged at the sides. And another secret to lower cost operation is prevention of rot—Pioneer Mucker Belt fabric is fully protected.

If you move bulk materials of any kind, chances are your Pioneer Rubber Mills distributor can help you lower costs by making money-saving suggestions. This on-the-job know-how is backed by the research laboratories and manufacturing technicians of Pioneer Rubber Mills—Leaders in Industrial Rubber since 1888.

### Distributors:

SEATTLE • TACOMA	Washington Belting & Rubber Co.
PORTLAND • EUGENE	Munnell & Sherrill, Inc.
KLAMATH FALLS	Klamath Machinery Co.
SPOKANE • BOISE	Intermountain Equipment Co.
SALT LAKE CITY	National Equipment Co.
DENVER	Western Belting & Packing Co.



# PIONEER RUBBER MILLS

BELTING • HOSE • PACKING • RUBBER COVERED ROLLS

PIONEER RUBBER MILLS • 345-53 SACRAMENTO ST. • SAN FRANCISCO 11 • BRANCHES: LOS ANGELES • CHICAGO • ST. LOUIS • FACTORIES: PITTSBURG, CALIF.



(Continued from page 23)

planes such as the Gloster Meteor, which can climb 40,000 feet—the B-36's much-talked-of bombing altitude—in less than five minutes. This is about double the rate of climb possible with North American's F-86 Sabers, newest U. S. jet fighter now in service.

## Lumber

Lumber entered the winter season of curtailed construction demand with unexpected strength and few changes from the peak of its 1949 recovery, reached for the most part in September.

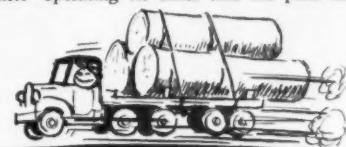
October saw little letup in orders and a bullish tendency for these orders to hold well above both productions and shipments. November started with an average order file of approximately 30 days in the fur industry, a comfortable backlog.

By the end of October the steel-coal shutdowns began to be felt. There was more choosiness among buyers and a small sag here and there in price lists. But premiums were still being paid for quick car numbers.

Transit cars, first barometer of a falling lumber market, ran into trouble near the middle of October and many were sold by wholesalers at cost. However, a quick pulling-in of horns apparently dropped the number of such gypsy cars and by the end of the month many wholesalers were reporting their transits moving easily where they carried desirable items.

A large number of smaller mills are reported entering the winter with low log supplies despite the long summer of good logging weather. They were severely pinched between high-priced log inventories and the falling market just a year ago.

This low log inventory is the case at both the winter-operating fir mills and the pine mill



## LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through	1947	1948	1949
September	6,449,817	6,843,848	6,098,252

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

Year through	1948	1949
September	2,153,645	2,005,418

From California Redwood Ass'n figures (includes redwoods and whitewoods):

Year through September	350,488
------------------------	---------

non-winter-operating snow country. Many of the latter feared another market drop and halted logging operations early in the fall. When the market unexpectedly held firm it was too late for them to do anything about it.

Lumber generally entered the winter season with a firm undertone but an uneasy near-term outlook because of the fear of the steel shortage and the strike's effect on the overall business picture.

## Pulp and Paper

Although mills are running at near capacity, competition has been getting tougher. Foreign pulps have a strong advantage over their position prior to money devaluation. Prices have sagged, varying according to grade, but off a few dollars a ton along the line for deliveries in fourth quarter of 1949. Expendable inventories of mill supplies have now been whittled

down to normal stocks and mills are buying again.

Pulpwood prices have held up quite steady. Supplies are increasingly from farmer and small operator sources, and often of off-season and marginal nature. Lower prices would tend to squeeze off this important supply. Potlarch Forests, Inc., of the Weyerhaeuser interests, with three big lumber mills in Idaho, have announced

they will enter pulp-paper field with new plant at Lewiston, to effect better forest utilization.

## PULPWOOD

(Pacific Northwest)

(Cords of 128 cu. ft., roughwood basis.)

Source: Bureau of Census

	Receipts	Consumption
June	368,695	251,302
July	273,469	189,542
August	362,568	264,890

## Plywood

Demand has been strong since about September 1 and this has been reflected in two small price advances with a third in the offing for final quarter for a total up of about 7½ per cent. Reason behind demand is gross underestimation of building. Buying was at consumer level in spring with jobbers performing no stock carrying function, but significant changes away

from such hand-to-mouth buying are now noted.

All mills are running at about full capacity. Peeler log situation is tightening up by reason of improved plywood market and because loggers held off their operations in spring and summer. Log prices are stiffening and supply is rather nip and tuck. If weather holds, mills can get through the winter without production slowdown, but another winter like last, with protracted freeze-up and heavy snow at higher ele-

vations, will bring a log shortage in first quarter of 1950.

## SOFT PLYWOOD

From Bureau of the Census

PRODUCTION

(In thousands of square feet)

	1948	1949
June	150,187	151,386
July	123,517	96,538
August	173,009	169,472

## Flour

Bakers apparently are generally Republicans, because they are still bearish on flour and refuse to buy more than 30 days ahead, despite the fact that President Truman has signed the new law passed by his favorite Congress fixing parity at 90 per cent. Flour people, whatever their political persuasions, are bullish and feel there is no possibility of flour prices declining for some time to come, in view of the parity law and the fact that cash wheat sales are up to loan value.

A number of Western mills participated in a purchase of 80,000 bags recently by the Chicago quartermaster depot, the largest order in a long, long while. Because the mills have not been grinding at full capacity, the supply of mill feed has diminished greatly and the food market is very strong.

Much interest is being taken in General Mills' introduction of "brown-n-serve" to the baking trade, a change in baking processes whereby rolls are cooked on the inside only and the housewife completes the job in her own oven. This is expected to overcome the staling prob-

lem and increase bread consumption, which has fallen off from 178 pounds per capita annually ten years ago to 144 lbs. The new process is announced as making it possible to keep rolls six days without going stale, or two weeks in the refrigerator or indefinitely in the deep freeze.

## Sugar

This has been a good sales year in the West, overall consumption increasing with the population, cannery sales about evening up with last year on account of more peaches to offset less

(Continued on page 27)

## CONFECTIONERY AND COMPETITIVE CHOCOLATE PRODUCTS

(From Bureau of Census)

(In thousands of dollars)

	COLO. - IDAHO - UTAH		— WASH. - OREGON —		— CALIFORNIA —	
Month	Sales	Per Cent Change from same month of Preceding Year	Sales	Per Cent Change of Preceding Year from same month	Sales	Per Cent Change of Preceding Year from same month
March	589	+ 1	412	+17	2,504	+ 5
April	499	+ 3	341	+ 8	1,934	-14
May	387	+ 6	227	- 3	1,663	- 5
June	381	+ 2	217	...	1,731	- 1
July	272	-13	265	+67	1,245	-15
August	336	- 6	241	*	1,849	- 6

\* Change of less than 0.5 per cent.

## WHEAT FLOUR

(In thousands of sacks. From Bureau of the Census)

	Ore.-Wash.	Montana	Utah	Colorado	California	Total
March	1,269	277	329	426	372	2,118
April	971	264	259	363	261	2,118
May	1,159	278	281	307	313	2,338
June	1,210	268	305	346	418	2,544
July	1,217	237	329	387	396	2,510
August	1,362	264	352	401	412	2,719

55 60

# 4 STEPS 5 SECONDS

*with the improved*

## STANLEY ACE STRAPPING TOOL

Here's how to put strapping on a production basis. This improved STANLEY ACE STRAPPING TOOL is light — fast — simple — even a beginner can make time with it. Magazine holds 75-100 seals — is easily loaded and seals in any position. The "Ace" is made in three different sizes, to handle  $\frac{3}{8}$ ",  $\frac{1}{2}$ " and  $\frac{5}{8}$ " strapping.

Decide now to put the "Ace" to work for you! Write for full information or ask for demonstration.

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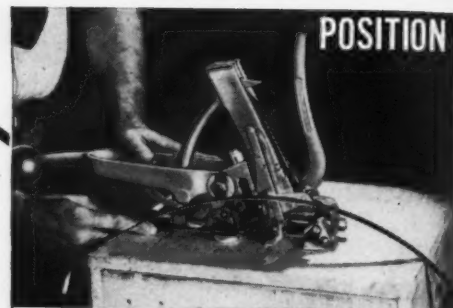
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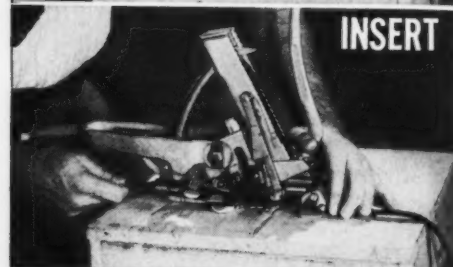
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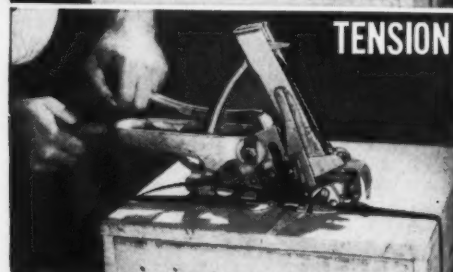
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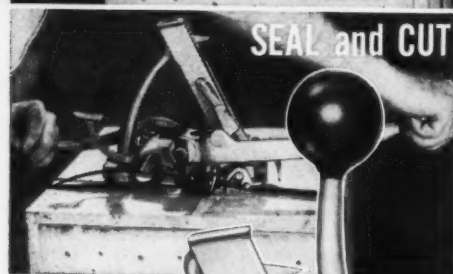
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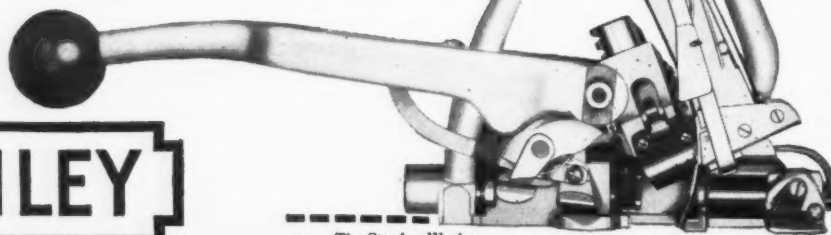
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(Continued from page 25)

apricots and fruit cocktail, bakery demand good.

California & Hawaiian Sugar Refinery Company's huge strike-bound refinery at Crockett still lay idle as this was being written, with the union having turned down the 10 cents an hour advance offered by management. Whether the wheels will be revolving again at Crockett by the time this issue of *Western Industry* reaches our readers could not be foreseen, but C&H have not been allowing all their raws in the Hawaiian Islands to pile up in warehouses, on tennis courts, and every other available spot. They have been moving some of this 500,000 tons through the Panama Canal to eastern cane refineries. Cane supply was sufficient to last until around December 1, and meanwhile Cuban and Porto Rican cane was moving into the Mississippi Valley area to replace Hawaiian sugar.

Meanwhile California beet refineries were greatly cheered by the unusually good yields, although the tonnage in the state will be under 1948, because of the heavy Imperial Valley crop last year. October 1 crop estimates, in tons, were as follows:

	1948		1949	
	Total crop	Yield per acre	Total crop	Yield per acre
California .....	2,809,000	11.2	2,502,000	14
Nebraska .....	672,000	12.2	738,000	12.5
Idaho .....	1,235,000	15.4	1,008,000	16
Wyoming .....	310,000	11.5	364,000	13
Colorado .....	1,370,000	13.3	1,769,000	14.5
Utah .....	427,000	12.2	392,000	14.5

### Canning and Packing

Final figures for Alaska pack of all species will run about 4,400,000 cases. This is about an average year—1948 was 3,970,000 and 1947 was 4,300,000, although prewar years ran higher. Red pack in more northerly waters largely a failure, but sudden big runs of pinks in south-eastern waters brought up totals. Red prices are holding firm around \$25 to \$27 case, but pink price slipped from about \$23 down to around \$16 as size of run became evident. Operators unwilling to forecast 1950 prospects as seasons have not been set and too many other unknown factors involved.

Sardines in southern California are entirely too plentiful from the packers' point of view. Several canneries have cut back their production schedules sharply, and Van Camp has asked for authority to process more oil and meal instead of canning the fish.

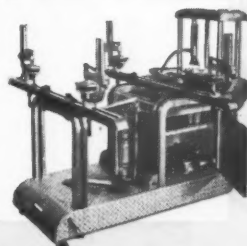
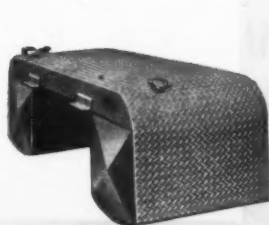
Actual figures on the California cling peach pack are slightly above the estimates published in the November issue of *Western Industry*. The total was 16,394,401 cases (No. 2½ can basis) of regular clings. The fruit cocktail pack was 6,131,700 cases, fruits for salad 729,873 cases, while 15,621 tons of peaches went into baby food.

Wholesale and retail stocks of canned fruits on August 1, 1949, are estimated by the Cling Peach Advisory Board as 22 per cent lower than last year, and the total fruit pack off 11 per cent. Opening prices of California Packing Corporation shows pears down 32 per cent from last year's opening, fruit cocktail 20 per cent, cling peaches 18 per cent, Royal Anne cherries 23 per cent, apricot halves 5 per cent, tomato cat-sup 22 per cent, tomatoes 7 per cent, cream corn 5 per cent. Asparagus was up 5 per cent, green beans 12 per cent, peas 4 per cent, pineapple unchanged.

October 1 reports of California canner stocks show a total supply of 2,219,671 cases of apricots on hand, as against 3,681,634 cases a year ago; sweet cherries 361,458 cases (72,700 last year); asparagus 924,519 cases (619,863 last year).

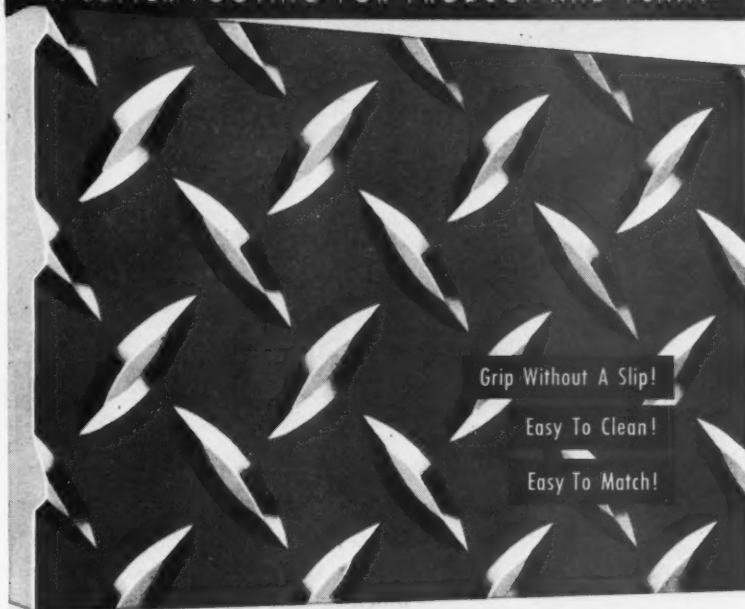
(Continued on page 29)

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## THE WESTERN OUTLOOK 6

### Meat

The tremendous hog production this year, brought on by surplus corn, has resulted in much heavy fat pork that has kept meat packers perplexed as to how to move the increased (and less marketable) lard, in view of the general surplus of fats and oils. Educational campaigns are on to encourage raising of hogs with more lean meat, but it may be a long time before they catch up to the excess lard supply. The hide market has been good, as shoe manufacturers have worked off their inventories and are talking about raising prices. On a long-range basis, the Western packers are not as well off as elsewhere in the country, because the heavy leather soles made from Western hides are encountering increasing competition from synthetic shoe soles.

### Furniture

Growth of the California furniture industry from \$15,800,000 paid out in wages in 1939 with \$38,255,133 in 1948, is reported by the Furniture Manufacturers Association of Southern California. Employment figures show 11,933 people employed in December 1948, of which about half were engaged in making household furniture, exclusive of upholstered.

### Chemicals

Signs that the steamship lines are beginning to see that half of loaf is better than no bread are visible in the recent cutting in half of the export rate on caustic soda. During the war period, American producers of chemicals moved in on Asiatic markets formerly supplied from China and Japan, but the Asiatic countries are beginning to get under way again and American products have started to lose out.

Changes in the superphosphate picture in the Pacific Northwest are on the horizon, with the completion in another month or two of Stauffer's new plant at Tacoma, which will utilize sulphuric acid from the Tacoma smelter of American Smelting and Refining Co. and import phosphate rock from the Stauffer properties in Wyoming. AS&R have a new plant to reclaim acid from waste stack gases. Stauffer also expects to be a prime factor in sulphuric

acid, as not all of the acid will be used in manufacturing fertilizer. This will be sharply competitive with Simplot, who has been bringing his sulphuric acid to Tacoma all the way from Denver.

### Building Materials

Demand for pipe and tile has continued to keep even with supply as a result of so much residential and public works construction, although a winter drop from now on for several months is expected. Refractories have not held up so well, however, due to the fact that most industrial expansion projects have been completed.

#### STRUCTURAL CLAY PRODUCTS

	UNGLAZED BRICK (In thousands of standard brick)	UNGLAZED STRUCTURAL TILE (short tons)	VITRIFIED CLAY SEWER PIPE (short tons)
January	6,864	12,192	2,300
February	7,877	11,163	1,562
March	10,145	11,576	1,557
April	8,276	16,237	2,519
May	11,997	20,864	2,894
June	13,314	28,182	1,887
			2,644
			2,657
			16,679

### Cement

Rainless fall weather through September, October and early November has kept building and street construction at a high peak in northern California, with the result that mills in that area have about exhausted their inventory. In Oregon and Washington the pace has been good, but slower, while southern California mills have been shut down by a sand and gravel strike.

#### CEMENT

	California— (In thousands of bbls.; from U. S. Bureau of Mines)	Oregon - Wash. Mont.	Utah - Idaho 1948 1949
Feb.	1,824	1,593	414
March	2,013	1,828	515
April	2,140	2,006	570
May	2,019	2,042	559
June	2,022	2,066	586
July	2,077	2,011	638
August	2,133	2,081	639
Sept.	2,116	1,982	607
			566
			511
			418

### Apparel

Replenishing of inventories has stimulated demand for knitted goods. Wool fabric prices have stabilized, after recent flurries in world markets upset by devaluation of the pound. Brisk seasonal pickups in cotton garment production came along right on schedule and a brighter sales picture in the West has helped Pacific Coast plants. Sportswear again is coming into better demand.

Eclipse of the sports shirt, a Western specialty, had come about during recent months when U. S. men were able to replenish their wardrobes with long-scarce dress shirts. Now that this pent-up demand has been more or less satisfied, sports shirts are being bought more freely. Cohn-Goldwater, oldest and perhaps largest Western manufacturer in this field, is expanding its shirt production with new equipment to boost output about 20 per cent. Like other firms, the company is beefing up its merchandising program to capitalize on strengthened retail demand in the West.

Shipments of wooden boxes and shooks during the first quarter of 1949 were 36.2 per cent under those of 1948, according to reports compiled by the National Wooden Box Association. The highest decrease in volume was experienced by the Inland Empire—eastern Washington and northern Idaho—where March 1949 shipments were 58.6 per cent under March 1948, due to decline in pre-season purchases of apple shooks.

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#### ETHYL ALCOHOL

(From Bureau of Internal Revenue)  
Production (in proof gallons)

##### DOMESTIC UNDENATURED ALCOHOL

1949	California	Colorado	Washington
April	558,733	.....	321,203
May	379,931	.....	269,087
June	668,503	.....	244,170
July	451,006	.....	.....
August	416,574	.....	174,602
September	527,974	.....	214,617

##### DENATURED ALCOHOL

1949	California	—Specially Denatured—		
	Completely Denatured	California	Utah	Washington
April	38,306	333,390	....	16,329
May	15,420	267,394	....	8,168
June	30,608	292,489	....	16,301
July	4,566	171,858	....	8,142
August	21,669	260,509	....	16,286
September	2,418	211,084	....	16,242

#### CALIFORNIA COTTONSEED

(In tons of 2,000 lbs.)

	Receipts at Mills	Crushed or Used
March	6,994	41,759
April	.....	30,558
May	1,497	28,328

##### CALIFORNIA COTTONSEED PRODUCTS

	Crude Oil (1,000 lbs.)	Cake & Meal (tons)	Hulls (tons)	Linters (Running bales)
February	11,917	17,044	6,817	12,254
March	14,182	19,532	9,219	14,053
April	10,521	14,860	4,398	10,856
May	9,301	13,868	8,936	8,698



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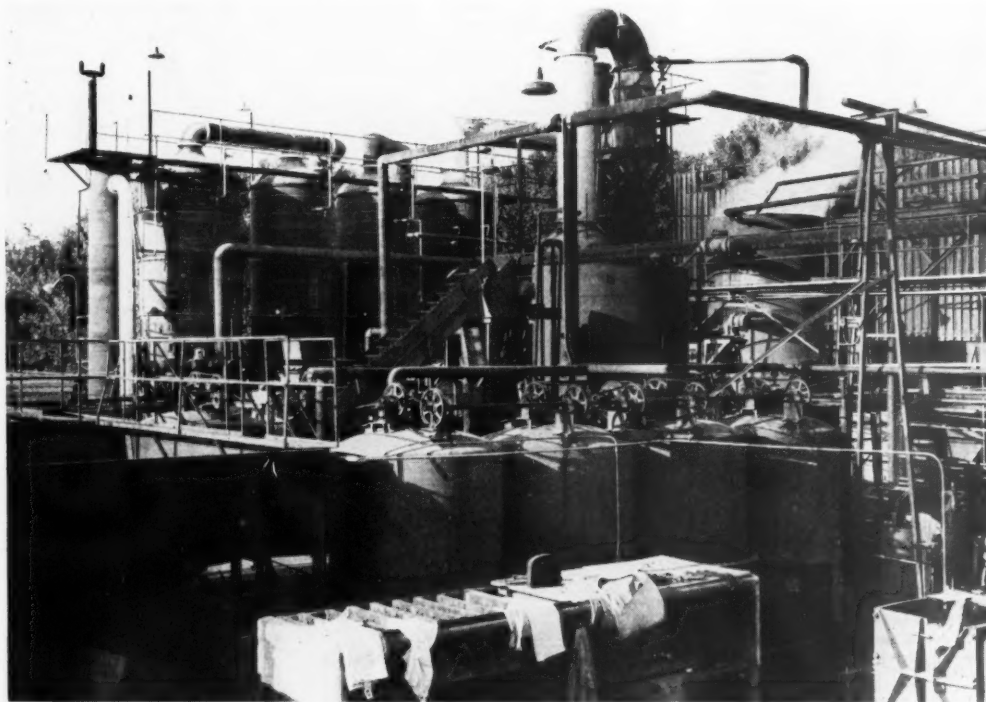
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PHOTOGRAPH BY AVE DON FROM HARPER'S BAZAAR

## **THE INDUSTRIALIZED WEST**



**NEW USES FOR CANNERY WASTE** are being developed in the West in such plants as this one. Some idea of the scale of pilot plant studies may be gained from the partial view of the plant shown. Equipment includes hopper and elevator, evaporators, mixing tanks, and cooling tower. Bag press in foreground is not part of the process, but used to prepare special sample lots in this San Jose, Calif., plant.

# **Developing Tomorrow's Supply Of Management Timber**

**A** CONTINUING supply of highly trained and competent managerial personnel is one of the most important requirements for a healthy Western economy.

To help meet the need for this personnel, the College of Business Administration at the University of California, Los Angeles, has undertaken a training program. They are cooperating with industry to prepare students with both a background in scientific management techniques as well as the practical experience necessary for success as future managers.

By MELVIN E. SALVESON

This program has been under way only one year, but already has paid dollar dividends to cooperating firms. It is also giving the students valuable experience in earning for an employer more than their expected salaries as junior production executives or industrial engineers.

This program takes the management class into the factory to test theoretical or scientific concepts and to give students practice in their application.

The first such in-plant project was in cooperation with Interstate Engineering Company of El Segundo, California. It yielded substantial savings in operating costs for the company and, of course, it gave a completely realistic setting for students' investigations.

U.C.L.A. was especially fortunate to be able to work with James Gallagher, vice-president in charge of manufacturing at Interstate, in developing the first project in this program. His long experience in manufacturing and his appreciation of the opportunities of cooperative management training were highly





**MELVIN E. SALVESSON**

• Lecturer in Production Management, College of Business Administration, University of California, Los Angeles. Graduate in mechanical engineering, University of California, Berkeley, and M. S. at Massachusetts Institute of Technology. Director of the Industrial Engineering Professional Division, Southern California Section of the American Society of Mechanical Engineers.

instrumental in making the program a success.

Donald Hausrath, chief industrial engineer, also was important in facilitating and sponsoring students in getting into a real "live" factory situation. His remarks as to the success of the experiment were that "the students actually expanded my department while working here and greatly helped in my methods-improvement program."

In this first project, students worked on applications of motion study and methods engineering to manufacturing, for increasing productivity and reducing costs. It emphasized operator motion analysis, methods engineering, materials handling, safety, plant layout, and process analysis.

#### "Live Setting"

The "live" setting was provided by the assembly department of Interstate's "Compact" Vacuum Cleaner Division. Everett Tibbets, supervisor of the department, stated that he was able to use students to help solve many of his production problems and bottlenecks. Students also developed many good suggestions that he was able to apply.

By studying and working in this realistic environment, students got a first-hand appreciation of factory management problems. For example, they were

required to study actual production operations and problems and to develop workable improvements and solutions. In doing so, they had to reconcile their analyses in terms of the existing human relations factor, market for the product, financial considerations, availability of factory space, process requirements, and other innumerable reasons why "it can't be done."

Information and data for their studies could not be found in prepared cases, but rather in the "raw" state. They were required to obtain their information from opinions of the customers, from analysis of financial data, from observed employee psychological reactions, and from existing operations and methods. And, of course, there were no prepared answers for convenient checking of solutions.

#### Valuable Study

As a result, the study was of direct value to the company in meeting its problems. At the same time it gave the students exercise in investigating and probing all possible evidence for important information upon which executive decisions must be made.

Work was carried out by dividing the entire assembly sequence into six series of operations with one group of students assigned to each for study. A seventh student group was assigned the task of analyzing and developing the best departmental layout, while an eighth had correlated anticipated sales volume and financial position with costs of proposed equipment or changes.

With counsel of the department supervisor, industrial engineering, and the instructor, students systematically attacked every job, experimented with possible improvements, and ultimately developed a suggested "one best method" for each.

#### It Takes Time

Shop study extended over a six-week period, thus allowing adequate time for guidance from the instructor and critical appraisal from company personnel. Student achievement was measured by quality of suggested improvements; high average achievement reflected enthusiasm and diligence with which they took advantage of this opportunity for practical experience.

Students learned that the most productive work methods must give full consideration to the human factor as well as technological aspects of the job. Their suggestions and recommendations gave evidence of this fact.

Of the groups working on methods improvement, Mr. Hausrath stated, "These students did a splendid job and turned in numerous suggestions. They



**JAMES GALLAGHER**

• Vice-president in charge of manufacturing, Interstate Engineering Company, El Segundo, California. Graduate in mechanical engineering, University of California, Berkeley. Secretary, Los Angeles Chapter of the Society for the Advancement of Management. During the war he served as lieutenant colonel in Ordnance.

were very complete and neatly diagrammed. All this material has been gone over very carefully and many of the ideas have been put into operation with only slight modifications."

"Before" and "after" charts of work methods and layout for motor assembly are given in figures I and II as examples of work these groups turned in. By using these charts, students developed facility in breaking a job down into elements and in synthesizing improved methods and layouts. Importantly, the student's habit of precise thinking and careful analysis is greatly enhanced through practice in such analyses.

In figure III, sections of "before" and "after" charts are shown for process flow on the assembly line as extracted from the complete departmental process analysis chart.

#### Vast Improvements

By the use of these charts and the systematic analysis they require, Industrial Engineering department reports "the students made the following improvements: operations reduced from 59 to 50, transportations reduced from 89 to 51, storages reduced from 68 to 35, and delays from 20 to 0.

"The proposed process flow chart and plant layout plan reduce backtracking of materials in process and save several



hundred feet of hauling while freeing-up considerable floor space. Now, with a smaller work force, production is up 50 per cent.

"All of this has been accomplished without demanding or expecting the employees to do other than a 'fair day's work.'" Plant layout improvement and floor space savings are illustrated by figures IV and V for "as found" and "as improved."

These analyses helped students obtain experience in over-all process coordination. Through their use they determined the best "time, place, and method" for accomplishing each job in assembly.

### A Thorough Job

Mr. Hausrath stated that "the student group on process flow charts did a thorough and neat job, turning in many good ideas which we are now using. On plant layout, they brought together some valuable information which we have been able to utilize, incorporating only minor changes compared to their suggested major changes."

During the fall semester a new group of students studied applications of motion and time study to plant operation under tutelage of Dr. Ralph M. Barnes, now professor of production management and professor of engineering at U.C.L.A.; the earlier group studied managerial problems of production planning with the writer of this article.

In the latter project they made comprehensive analyses of planning requirements of cooperating companies in terms of their markets, their products,

and their processing facilities. Throughout their work they were concerned with effects of the business cycle on various industries, techniques for translating cyclical effects into planning policies, and methods and procedures for day-to-day control of operations in accordance with production policies.

### Familiarity Breeds Control

Their first procedure was to become familiar with the cyclical nature of business operations and the resulting effect on managerial plans and decisions. With this background they analyzed the product's sales fluctuations and, together with required processing facilities, developed a system of production control and coordination for lowest cost manufacture.

When their work was complete, results were compared with systems actually in use. Such comparison yielded many benefits to students by illustrating actual practice, and to the companies by giving them a comprehensive analysis of their planning and forecasting requirements from a fresh point of view.

### Other Methods

Other methods of coordinating classroom training with practical experience are being developed, foremost of which is the production management "externship" program. Through it students may work in industry during their summer vacations, using their off-hour time for supervised study and research on actual problems. Under appropriate conditions, they may receive academic credit for this work.

Research is devoted to problems arising out of their regular employment, and studies to date have led to many significant improvements for their employers. Interestingly, these projects have a very broad application.

For example, one student received the suggestion system award at Bullock's Department Store for a study on "the application of production management techniques to retail operations." Another interesting example is that of a student employed on a part-time basis as an "administrative intern" at the Santa Monica Hospital. Through direct application of management techniques he has been able to serve the hospital in many important ways.

### Complete Program

These include developing an orientation program for new personnel, correlating hospital occupancy (equivalent to shop machine loading) with hospital employment and developing charts for control, systems for control of linen and supplies (equivalent of inventory control), determination of operation times (surgical as compared to manufacturing) for efficient scheduling of operating rooms, methods analysis for improving flow of linen in surgical packs, and a broad long-range study of hospital layout for the most efficient utilization of existing hospital plant and facilities (equivalent to plant layout study).

A further method of bringing students into actual business situations is

(Continued on page 37)

\* Aerial view Interstate Eng. Corp. Douglas Aircraft above, left; Santa Fe spur track above, right; No. Amer. Aviation below, left.



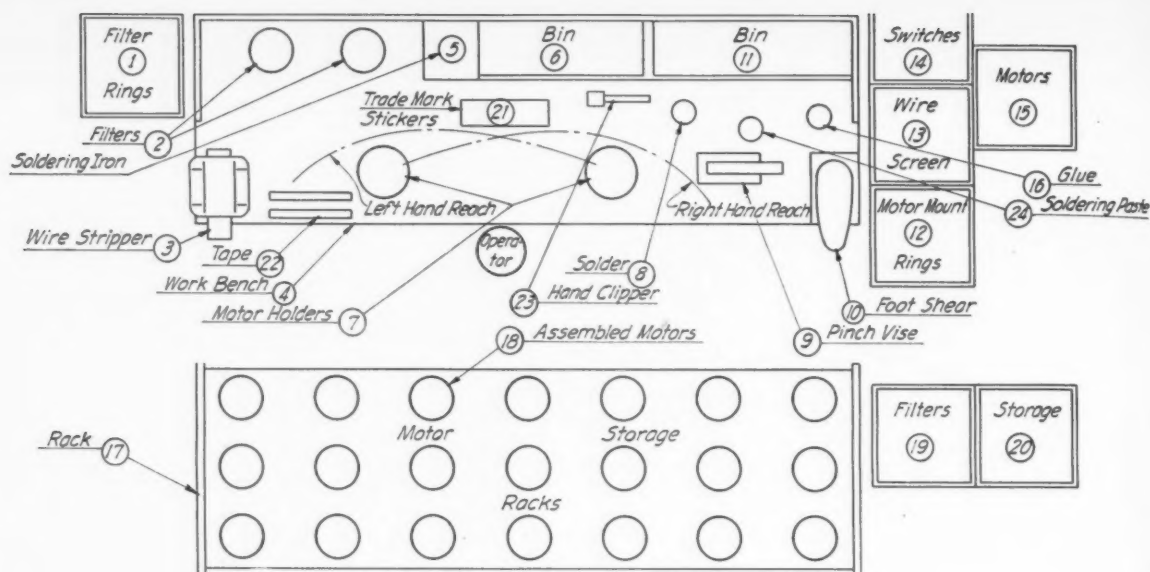


Figure 1

### Switch Assembly — Present Method

Left Hand		Right Hand		Left Hand		Right Hand
Hand to motor box piece 15.	1	1 Hand to motor box piece 15. (Two steps and bend over.)		Wrap tape around one end of insulation and wire.	16	22 Assist left hand.
Assist right hand.	2	2 Pick up motor.		Wire to pile.	17	23 Wait for left hand.
		3 Motor to workbench. (Repeat until 10 motors are on the workbench.)		Hand to switch box piece 14.	18	24 Hand to switch box piece 14.
Wait for right hand.	3	4 Hand to hand clippers.		Assist right hand.	19	25 Pick up 10 switches.
		5 Clippers to motor.		Hand to switch.	20	26 Switches to workbench.
Hold wire.	4	6 Cut two wires off motor. (Repeat for 10 motors 5 & 6.)		Switch to pinch vice piece 9.	21	27 Hand to pinch vice piece 9.
Wire to pile (any place on bench).	5	7 Wait for left hand.		Place switch in vice.	22	28 Open vice.
Wait for the right hand.	6	8 Lay clippers down.		Hand to wire.	23	29 Close vice.
		9 Hand to wire.		Wire to switch.	24	
		10 Wire to electric stripper.		Insert wire into hole in switch terminal.	25	30 Wait for left hand.
		11 Strip both ends.		Hand to soldering iron piece 5.	26	
		12 Wire to pile. (Any place.) Repeat for all wires.		Soldering iron to switch.	27	
		13 Hand to insulation.		Hold iron.	28	31 Hand to soldering paste piece 24.
		14 Insulation to shear.				32 Paste brush to terminal.
Catch cut pieces.	7	15 Shear to short lengths. (Repeat for all necessary.)				33 Brush terminal with paste.
Pieces to workbench.	8	16 Hold insulation.				34 Paste brush to paste can.
Hand to shear. (Repeat 7-9 for all necessary.)	9					35 Hand to solder piece 8.
Wait for right hand.	10	17 Insulation to workbench.				36 Solder to terminal.
Hand to wire.	11	18 Hand to short insulation.		Solder wire to terminal.	29	37 Solder wire to terminal.
Wire to working point.	12	19 Insulation to working point.		Soldering iron to workbench.	30	38 Solder to workbench.
Hold wire.	13	20 Slide insulation on wire.		Hand to switch.	31	39 Hand to vice.
Hand to tape piece 22.	14	21 Hold wire.		Switch to pile on bench. (Repeat 20-32 until all are completed.)	32	40 Open vice. (Repeat 28-40 until all are completed.)
Tape to wire.	15					
						Repeat Cycle

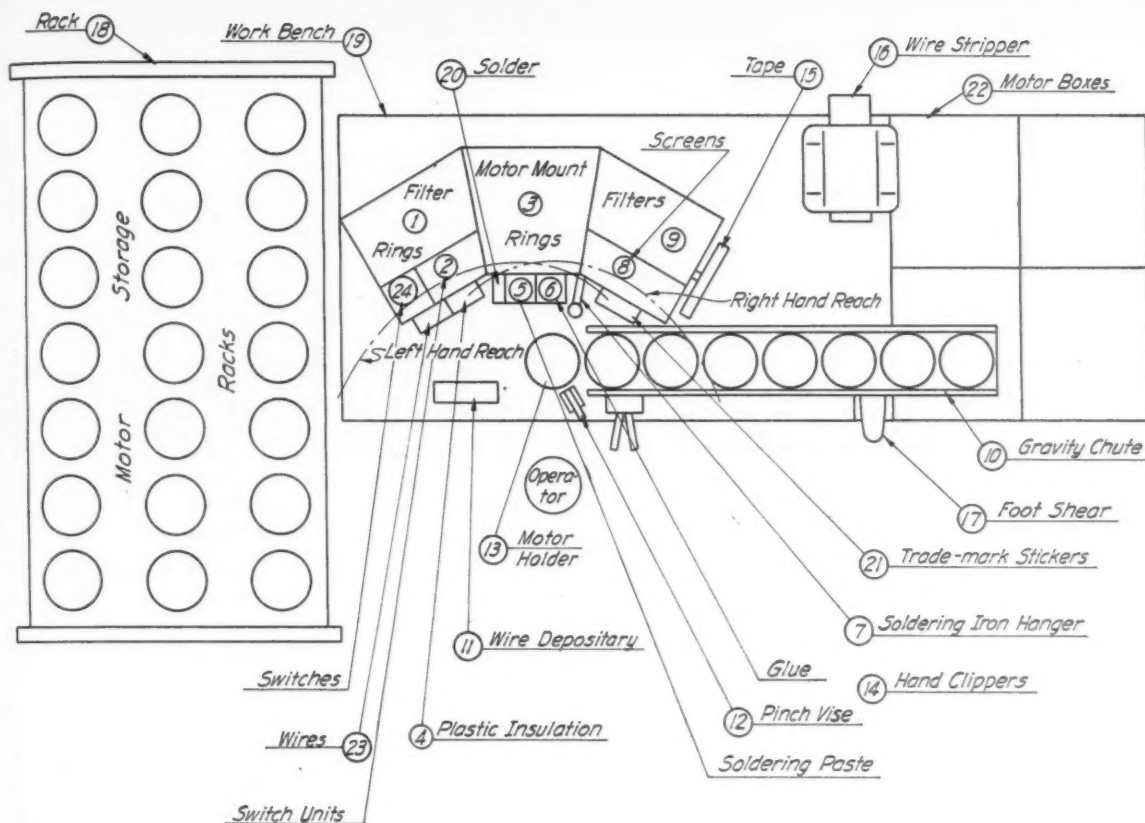


Figure II

### Switch Assembly — Proposed Method

Left Hand		Right Hand	
Hand to switches piece 24.	1	Hand to pinch vice piece 12.	12.
Pick up one switch.	2		
Switch to pinch vice.	3	2 Open vice.	
Place switch in vice.	4	3 Close vice.	
Hand to wire piece 23.	5	4 Wait for left hand.	
Wire to switch	6		
Insert wire into hole in switch terminal.	7	5 Hand to soldering paste piece 5.	
		6 Paste brush to terminal.	
Wait for right hand.	8	7 Brush terminal with paste.	
		8 Paste brush to paste can.	
Hand to solder piece 20.	9	9 Hand to soldering iron piece 7.	
Solder to terminal.	10	10 Soldering iron to terminal.	
Solder wire to terminal.	11	11 Solder wire to terminal.	
Solder to rack piece 20.	12	12 Soldering iron to hanger piece 7.	
Hand to switch.	13	13 Hand to vice.	
Switch to bin piece 2.	14	14 Open vice	

Repeat Cycle

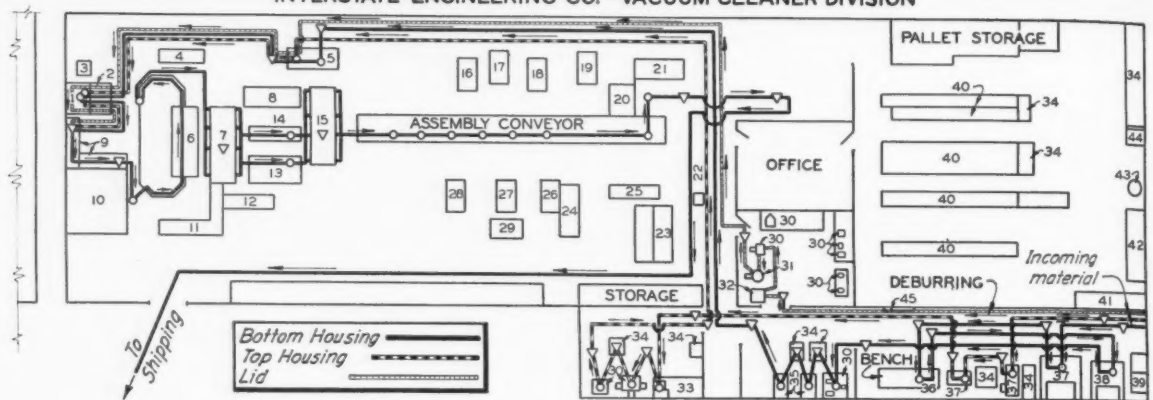
### Figures I and II

"Important gains were developed in individual worker productivity throughout the department. To achieve these, the students had to analyze and develop improvements for every job. This required first that they record in a 'workplace layout' plan and an 'operations' chart (of the operator's motions) each job as it existed; then that they analyze the plan and chart for possible improvements in accordance with certain industrial engineering principles; and, finally, that they develop the 'one best' layout and work methods. Figures I and II are an example of one of these studies. In figure I are shown the 'before' layout and operation chart for the assembly of motor switches in motor assembly. Figure II represents the improved layout and chart. As the result of the analysis and improvement, motions on this job were reduced from 40 and 32 for the right and left hands respectively to 14 for each. Certain elements were removed for more efficient performance at other times. The cost savings, of course, are almost proportional to the reduction in work motions."

(Continued on next page)

## ORIGINAL PLANT LAYOUT

### INTERSTATE ENGINEERING CO. - VACUUM CLEANER DIVISION



- |                    |                           |                            |                           |
|--------------------|---------------------------|----------------------------|---------------------------|
| 1. Degreaser       | 15. Storage rack for line | 23. Workbench—hose         | 34. Table                 |
| 2. Degreaser steps | 16. Workbench—floor tool  | 24. Hose storage           | 35. Tapper                |
| 3. Degreaser Aux.  | 17. Workbench—demother    | 25. Bench                  | 36. Electric hand grinder |
| 4. Table           | 18. Workbench—sprayer     | 26. Workbench—bag          | 37. Grinder               |
| 5. Workbench       | 19. Workbench—floor tool  | 27. Workbench—instructions | 38. Buffer                |
| 6. Drying racks    | 20. Parts bins            | 28. Workbench—motor        | 39. Blower                |
| 7. Storage racks   | 21. Parts bins            | 29. Workbench—motor        | 40. Storage bins          |
| 9. Storage benches | 22. Champion wire sticher | 30. Drill press            | 41. Storage bins—rejects  |
| 10. Paint booth    |                           | 31. Tapper                 | 42. Filter parts          |
| 11. Benches        |                           | 32. Grinder                | 43. Barrel trash          |
| 12. Racks          |                           | 33. Reamer                 | 44. Barrel solvent        |
| 13. Decal bench    |                           |                            | 45. Switch box            |
| 14. Decal bench    |                           |                            |                           |

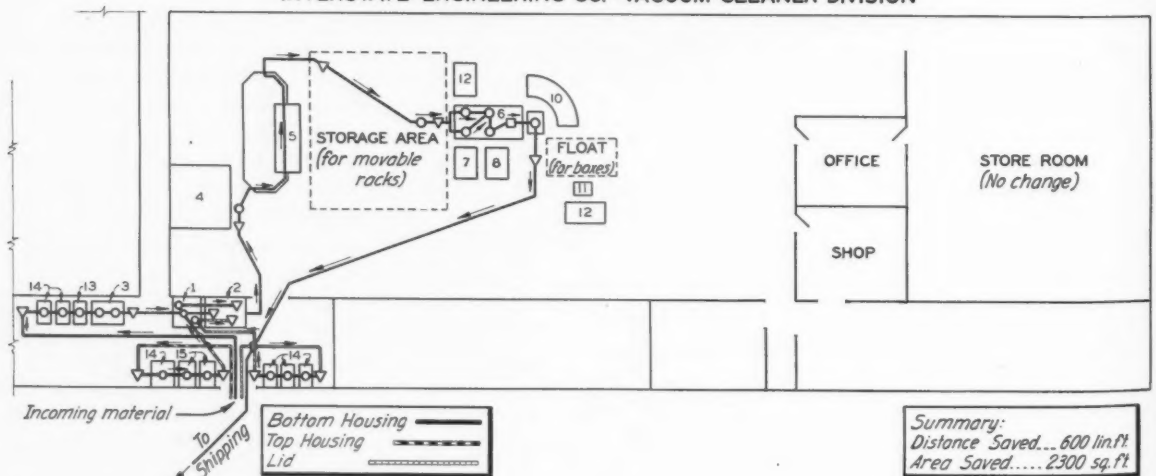
**Figures IV (above) and V (below)**

• Significant improvements in the layout and space efficiency of the department were developed through the use of the Layout Plan and the Process Flow Chart. By using these tools together, it was possible to determine critically the "one best"

time, place, and method for performing every job. Figure IV represents the layout as found, and figure V as improved. The results are: 2,300 square feet of floor space released, 600 feet of materials movement eliminated.

## IMPROVED PLANT LAYOUT

### INTERSTATE ENGINEERING CO. - VACUUM CLEANER DIVISION



- |                |                    |                           |                 |
|----------------|--------------------|---------------------------|-----------------|
| 1. Degreaser   | 5. Heat lamps      | 9. Table                  | 12. Workbench   |
| 2. Workbench   | 6. Conveyor        | 10. Workbench—assemblies  | 13. Reamer      |
| 3. Workbench   | 7. Workbench—motor | 11. Champion wire sticher | 14. Drill press |
| 4. Paint booth | 8. Workbench—bag   |                           | 15. Tapper      |



(Continued from page 33)

accomplished by allowing graduate students to conduct intensive research on problems of importance to individual companies or industrial associations. Such projects are under close supervision of the faculty and are directed toward the development and application of new industrial techniques and procedures.

One such study which gives promise of significant contribution is concerned with "the impact of time study programs on factory personnel." It is being conducted by the "participant-observer" method in which the student works as a regular production employee and uses his daily work relations and observations as the source of his research data. Results promise to be of value to management in formulating decisions and policies regarding the application of industrial engineering and time study programs.

#### **Comprehensive Program**

All of these projects are part of a comprehensive production management training program at the college which is intended to prepare students for assumption of responsible positions in manufacturing and industry after they have acquired experience and familiarity with specific companies.

The program includes training and field experience in special subjects such as motion and time study, wage and incentive systems, plant layout, industrial cost accounting, production planning and control, purchasing, quality control, and line production methods.

#### **On a Firm Foundation**

These are in addition, of course, to the general training required of all students in the fields of business organization, finance, accounting, human relations, marketing, statistics, business law, and business economics. Preparatory training for students participating in this program is carried out in the new \$1,600,000 Business Administration and Economics Building. It is being provided with complete equipment and facilities for training and research in all of the various aspects of production management and for cooperation with industry.

The college also offers students opportunities to specialize in other management fields including marketing, financing, personnel management, industrial relations, accounting, and office management.

With the growth of training and research programs such as these both for students in universities and for industrial executive groups, it is to be expected that "management" will be ac-

celerated in its growth to full professional stature. With attainment of such stature, university-level schools of business will come to parallel their elder professional schools, such as medicine,

### **SIZABLE SAVINGS PROVIDED BY PROCESS FLOW CHART**

By the use of the process flow chart and the systematic analysis it requires, students made the following over-all improvements:

Operations reduced from 59 to 50;

Transportations reduced from 89 to 51;

Storages reduced from 68 to 35;

Delays reduced from 20 to 0.

These improvements were afforded by balancing operations, adjusting work petitions along the line, and smoothing the flow of work.

Other savings, fully as important and cost-reducing, were developed. For example:

Travel distance was reduced from 36 feet to 20 feet;

Time involved was reduced by approximately 25%;

Delays were eliminated;

Work was made easier for the operators by reducing the "pick up" and "lay down" of vacuum cleaners in process.

Output was stepped up 50%, with a smaller work force.

Process flow charts were laid out primarily to show every operation on each part or assembly. Then those operations were studied for the one best "time," "place," "method," or "combination."

Such analyses as the process flow chart requires, best help the engineer to determine those factors just listed.

engineering, and law. They should become increasingly the focal point of business research, as well as a valuable source of well-rounded business managers.

If one views seriously the current social, economic, and political trends, he easily recognizes that continuance of our free enterprise system is dependent on development of highly-trained business managers who have the social con-

science and the technical competency to effectively conduct affairs of their companies and industrial economy for the broadest maximum benefit. It is to this end that business schools are addressing themselves with their full effort; it is hoped that the business community will respond with ever growing cooperation in these schools' efforts to improve quality and effectiveness of managerial training. The medical profession, which has long recognized the value of "internship" programs, is now extending such practice to hospital administration.

It is hoped that as the professional level of management is raised, a similar program may be developed which will give equivalent experience to the future managers of our economic system. For, surely, decisions and actions of business managers are as important in determining our economic well-being as those of medical practitioners are in maintaining our physical health.

#### **West Coast's Future**

Further, one sees that future success of industry on the West Coast depends heavily on a continuing increase in productivity of individual workers and their industrial concerns. For, in the last analysis, it is productivity which determines real wages, standards of living, and continued existence of competitive enterprises. Accelerated research in the scientific techniques of management, such as are included in the college's production management program, will be a powerful method for attaining these necessary productivity increases.

#### **Opportunity Abounds**

It is in this regard that there exists an especially fruitful opportunity for Western industry and university business schools to extend their research cooperation. Each has skills or facilities which supplement the other's; the greatest gain may be expected from research that they jointly sponsor and conduct.

Foremost among the college's present research plans is a proposal for a "Productivity Clinic" which would be devoted to research and investigation leading to methods of increased productivity.

It will encompass studies of technological, human relations, and organizational methods of high-level low-cost production. While additional industry cooperation is required before this program can be fully realized, nevertheless experience at the university thus far offers genuine promise that we may expect increasing interest and participation on the part of industry.

# For Accurate Quality Control Make One Man Responsible

**U**NDER today's highly competitive conditions, strict control of a manufacturing process is imperative if the manufacturer is going to stay in business.

When Simpson Logging Company's woodfiber plant set up their quality control department, it was made responsible only to the mill manager. All testers and inspectors were immediately transferred from production to the control department, to insure accurate testing, impartial inspection, and centralized responsibility.

In this mill two major phases of operation must be controlled: the Board Mill proper and the Finishing Room. The Board Mill produces large sheets of dried, untrimmed boards. The Finishing Room (which is a factory in itself) processes and packages the dried board into various items to be marketed. In these two phases of operation two distinct types of control are necessary.

In the Board Mill phase, which is a continuous operation, all tests (with the exception of the final one to determine quality) are made to prevent offgrade production. Control tests are taken during each step of the operation to insure production of a satisfactory product. Thus quality control reduces conversion costs not only in the board mill but also in the finishing room, since better quality board will be obtained for processing.

Control in the finishing room means 100 per cent inspection on each item produced. Inspection here is pointed toward elimination of offgrade material.

In the manufacture of wallboard there are seven steps to be controlled. These tests are mostly physical in nature although some chemical changes take place.

The wood supply, taken directly from the company's own sawmills in the form of leftovers, is graded at the chipper. Wood containing an excessive amount of dry rot is rejected. A close check is kept on the wood species and a report is handed in after each shift, giving a close estimate of the percentage composition.

By F. S. McGEE  
Quality Control Supervisor  
Simpson Logging Co. Woodfiber Plant  
Shelton, Washington

Hourly samples of chips from the chipper are taken for a cumulative moisture test and average chip size.

As a usual thing, wood species are predominantly Douglas fir and hemlock. Both virgin timber and second growth timber are also cut and enter the fibreboard picture. Experience has shown that these two species (and variations within species) produce an entirely different type of pulp; therefore it is important to know the species currently being worked. At the present time chips are mixed in a single bin, but plans for the future call for separate storage and subsequent accurate proportioning.

Screened chips are taken by conveyor from storage to 14-foot rotary digesters where they are steamed under pressure. Steaming time and pressure, the only controls used in this step, can be varied at will to conform to the refining characteristics of the wood.



F. S. McGEE

Steamed chips are dumped from the digesters into huge hoppers, from which they are conveyed to a battery of attrition-type refiners. Here they are reduced to pulp in one pass through the refiners.

Three distinct types of pulp are produced. They are classified by freeness tests as "free," "intermediate," and "slow stocks." They are stored in separate chests and are subsequently blended to produce the required stock.

The blending operation is limited by the productive capacity of the refiners and the capacity of the storage chests. It is therefore necessary to balance out the operation. In order to do this freeness tests are taken on individual refiners and storage chests.

Gradual adjustments are made in refiner settings until the standard test is obtained. Hourly tests are necessary to prevent overcontrol of the process. The blended stock is run over screens to remove pieces of undefibered wood. Screening also tends to produce a smooth board surface, readily adapted to painting.

Because wood fiber is hygroscopic, and since the board structure in cross section contains voids, it is necessary to introduce a sizing agent. This is emulsified rosin, later precipitated with "paper makers" alum. Sizing is a continuous operation.

The quantity of size is controlled by Rotometer measurement set to a predetermined volume. Up to and including sizing the furnish must be kept close to a neutral pH. At times it is very hard to do this because wood, when heated in the presence of moisture is subject to hydrolysis, which forms the so-called wood acids.

To overcome the acid condition, lime is added in limited quantities controlled by pH measurements. These additions are made in an agitated chest, whose contents are being continuously pumped to a machine storage chest. Pumping and agitation insure thorough dispersion of the chemicals added.

The forming machine takes the slurry from the machine chest by pump. Just before the stock goes on the forming machine a solution of alum is added. pH is the controlling factor and it is checked constantly.

Temperature of the system, another pertinent factor, is regulated by the addition of cooling water, as needed. The standard temperature might conceivably be changed with a change in sizing technique.

Forming machine operation is controlled by speed, the amount of stock used, and the press settings. These factors are in turn controlled primarily by the stock freeness. Resistance to water removal determines all phases of machine operation and board quality.

Without going into the technical side of the subject, it is sufficient to say that "freeness" controls the weight per unit volume of a board structure to a great degree. At the same time, strength of the board structure depends to a large extent on weight per unit volume.

Caliper at the wet end is measured by a dial micrometer attached to the frame of the machine just following the last press roll. This micrometer has sufficient pre-loading to insure a positive reading.

There is a certain amount of "spring-back" inherent in the wet board structure, caused by compression of the sheet in the press section beyond its natural thickness. Springback varies with the wood species and the stock freeness. A series of press section settings and micrometer readings has been worked out for each set of conditions. These settings are in turn balanced to a predetermined setting of the stock valve.

A further variable is stock consistency to the forming machine. In practice the

stock consistency to the machine is kept as thin as possible, regulated by the machine operator. However, machine design definitely limits stock dilution.

Hourly consistency tests are taken and recorded for machine operators' guidance. Stock consistency has a bearing directly on sheet formation and indirectly on strength tests.

The sheet is now ready to be dried. Before this step is taken, potential board shrinkage must be considered. The wet board must be sufficiently oversize both in cross section and lineal measurement to allow for shrinkage during drying.

Here again stock characteristics are the determining factor. A "slow" stock will shrink more than a "free" stock. Regardless of the apparent complications and variables inherent in the process it is possible, by controls described above, to come up with the correct answer.

Drying operation is carried out by a Coe board dryer with roll carriers. Drying is accomplished by evaporation of extraneous water with a heated air stream and by diffusion as a secondary phase.

Variables in this type of drying are relative humidity of the drying medium, and amount of water to be removed. Relative humidity is automatically controlled by compressed air actuated vents. Motors actuating the vents are in turn controlled by a mechanism employing wet and dry bulb readings. Amount of water to be removed depends upon forming machine operation and is fairly constant.

In theory the board should be dried from the cross sectional center line outwards to eliminate case hardening. This requires control of humidity to offset excessive surface evaporation. Heating of the air stream is manually controlled.

A recording thermometer indicates temperatures at three points progressively situated from the wet end to the dry end. Maladjustment of drier controls results in under- or over drying and warping.

All controls this far are designed to aid production in preventing an off-grade product.

The final phase is testing the product to determine its quality. To do this, hourly tests are made for tensile and transverse strength as well as caliper, density (wgt. per unit vol.) and water absorption.

In addition, tests are taken to determine the amount of moisture remaining in the apparently dry board. Standards set for the finished board depend entirely on consumer use, and will vary over a wide range. Federal specifications are met or bettered for any given type of board.

A large percentage of the board is further processed in the finishing room into specialty items to be used for interior decoration and permanent construction. As produced, each item is inspected on a 100 per cent basis. Off-grade material is either reclassified to a lower grade or repulped and returned to the board mill to be reformed into board.

1) The terminology, free, intermediate and slow stock, is derived from the pulp industry which employs dewatering of thin slurries of pulp and water on a traveling wire. Free pulp is one which dewater easily; intermediate and slow stocks are relatively harder to dewater as compared to free stock.

The Green freeness tester is used in this mill. It is a side-drainage type employing a removable, perforated plate in the top of a 1-liter container.

In operation the container filled with a pulp slurry is placed plate-side down, directly above a cone with a small orifice at the apex and an overflow in the side. The slurry is allowed to dewater into the cone. The orifice constricts the outflow from the cone and raises the water level to the side drain. Outflow from the side drain is measured in c.c. This figure, in c.c., is termed "freeness." It is an empirical test giving differential readings only.

• A portion of the 385-foot drying mechanism which carries boards on eight levels.



• Sheets of insulation board from dryer.





## Trends in Transportation



*Illustration courtesy Fruehauf Trailer Co.*

### Check Freight Rate Spiral By Revising Canal Tolls

### Short Haul Volume Swings From Rails to Trucks

Two present transportation trends give Western industrialists occasion for careful study. ¶ First is a move toward revising Panama Canal tolls so that commercial cargo does not bear the whole burden of canal upkeep. This would help restore the presently-languishing intercoastal shipping to its pre-war function of facilitating trade between the two coasts and serving as a check on transcontinental rail rates. ¶ Second is (a) an indication of the amount of diversion of short haul land traffic from rail to truck (supporting the assertion that carloadings are no longer an accurate gauge of business activity); (b) revelation of a swing toward proprietary trucking, i.e., business firms owning their own fleets.

**J**UST when the burden of inevitably advancing rail freight rates seems to many to be the last straw that breaks the camel's back in transcontinental traffic, a new possibility opens up.

It is a move to get Panama Canal tolls revised, which at the least should keep intercoastal steamship rates at their present level, and perhaps even permit a reduction of up to 50¢ a ton. Intercoastal steamship lines have largely been out of the running since the war, because operating costs have advanced so much, and lower canal tolls would put them on their feet financially, and



renew the prewar rail and water competition.

Higher labor costs and freight rates jointly have begun to cause casualties in some Pacific Coast industrial operations. Production of canned spinach, for example, is no longer possible in the West except for the Western market alone. Some of the largest canners, like California Packing Corporation and Hunt Foods, have bought canneries in the Middle West or on the Atlantic Seaboard, to solve the problem of supplying the big Eastern markets, but smaller canners who cannot afford such capital expenditures are simply out of the picture. The same situation is likely to develop in the case of canned tomatoes and tomato products, in which the West has become an important factor in recent years.

Iron and steel products, moving almost entirely Westbound, are taxed \$1,000,000 a year, according to the Pacific American Steamship Association. Lumber, one of the West's major commodities shipped through the canal to the eastern United States and European markets, pays a million and a third annually. To reach broader markets through the canal, the Coast's agricultural products—animal and dairy products, fruits, vegetables and grain, pay an annual toll of near to half a million dollars.

Even more than in Gulf and Atlantic states, the Pacific Coast has a stake in lowered tolls. Of the entire water-borne commerce of the Pacific Coast, 64 per cent passes through the canal. Only 13.9 per cent of Atlantic cargoes transit the canal and only 20 per cent of Gulf cargoes. Thus, proportionately, Pacific Coast industries pay the lion's share of the tolls.

## How to Translate Panama Canal's 1914-1948 "Deficit" Into Profit

Changes proposed by National Federation of American Shipping and Pacific American Steamship Association

	Millions	Millions
Gross Revenues (\$574.8 million was tolls).....		\$609
Less: Operating Costs.....	\$335	
Interest on Building Funds.....	425	
	\$760	760
Deficit.....		—\$151
Alternates if Commercial Shipping Charged in Tolls, only expenses of providing transit to commercial vessels.		
A. Deficit .....	\$151	
Less Interest Paid ①.....	425	
Profit .....	\$274	Would reduce tolls by 45%
B. Deficit .....	Millions	
Less: Interest on building funds.....	\$425	
Toll free transit on gov. ships ②.....	64	
	\$489	\$489
Profit .....	\$338	Would reduce tolls by 55%
C. Deficit .....		
Less: Interest on building funds.....	\$425	
Toll free transit on gov. ships.....	64	
½ of "Dual Purpose" items ③.....	57	
	\$546	\$546
Profit .....	\$395	Would reduce tolls by 65%

① A. "minimum contribution . . . on account of its national defense characteristics is that there should be no further charge for interest on capital provided for its construction by the U. S."

② B. "there should be no exemptions, but all ships, commercial and military, of all nationalities, should be treated equally." (U. S., Panamanian, and Colombian government ships now go toll-free).

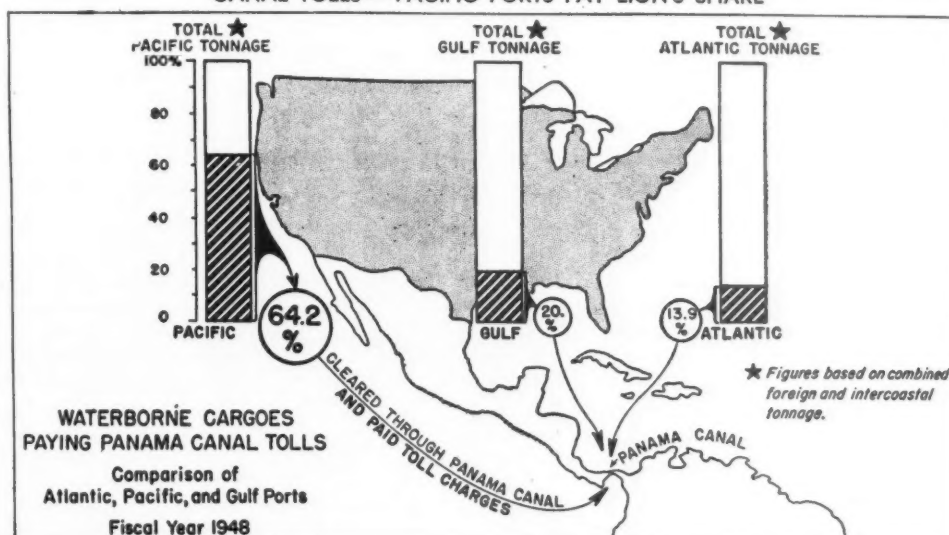
③ C. "in determining the allocation of expenses for multiple (dual) purpose activities functions, such allocations (should) be on the basis of an arbitrary one-half thereof, (U. S. one-half and commercial shipping one-half) or some other logical division."

Under the present system of Panama Canal operation, commercial shipping pays the entire cost. Tolls are assessed at the rate of 90c a vessel ton, which means about \$7,000 for single passage of a C-3 type ship, a freighter in common use today. For intercoastal ships, this would be \$14,000 for a round trip

voyage, an amount roughly equal to the entire crew's wages for a month's period. Intercoastal carriers assert that they lost \$4,000,000 between 1935 and 1939, during which period they paid \$25,000,000 in canal tolls.

Government ship transits are toll-free. In addition to shouldering the cost

## CANAL TOLLS — PACIFIC PORTS PAY LION'S SHARE



of putting navy vessels, army transports, etc., through the locks, commercial ships are charged 3 per cent interest on government funds used to build the canal, and the maintenance costs of schools, parks, post-offices and all the rest of the buildings for Canal Zone staff personnel. Many of these government activities have no connection with furnishing passage through the canal for commercial ships.

The "interest" assessed against commercial ships is actually only a book-keeping procedure at the Panama Canal, used as a cost factor in calculating toll rates. The U. S. Treasury does not bill the canal for interest, and the Panama Canal doesn't pay any interest to the Treasury. As for the logic of charging commercial ships for government use of the canal and for upkeep, it is a recognized fact that perhaps the main reason for building the canal was national defense, so the United States could use her Navy in both the Atlantic and Pacific oceans.

Prospects for a revision in tolls lie ahead. After President Truman ordered an increase in tolls to make up for a cut in appropriations in the Army budget, a Congressional committee asked the President to make a full organizational study of the canal. The President then ordered the toll increase postponed until April 1, 1950, and ordered the Bureau of the Budget to conduct a complete study.

## Rails to Trucks

**P**ROOF that some of the declining rail carloading figures are being compensated for in motor truck shipments seems to be evident in a recent engineering study by the Public Utilities Commission of California. Tonnage moved by highway carriers far outran the rail movement.

The study shows that truck tonnage between the San Francisco-Oakland metropolitan area and the Sacramento and Stockton areas has increased 22.1 per cent northbound and 53.1 per cent southbound between 1946 and 1949.

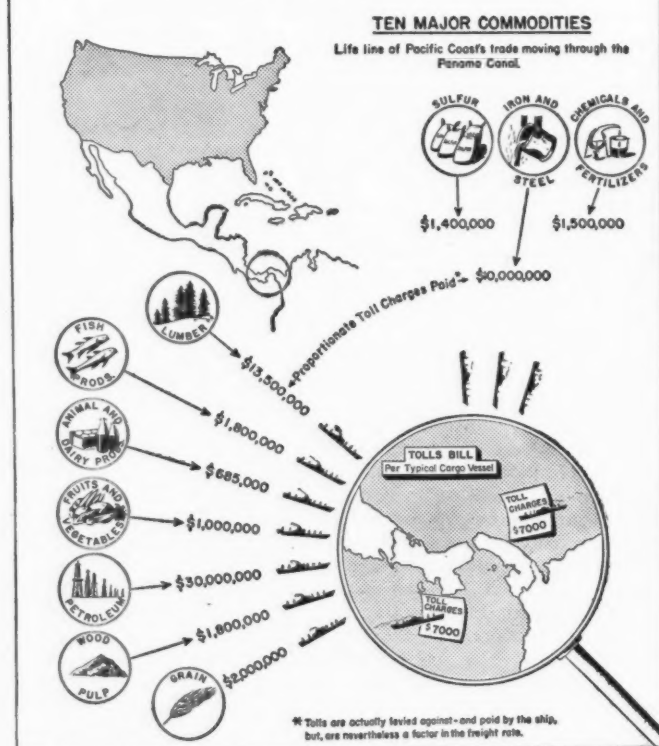
An interesting angle pointed out by Warren K. Brown, director of transportation for the P.U.C., is that proprietary tonnage increased 49.5 per cent northbound and 63.6 per cent southbound, as contrasted to the total increase for all types of carriers shown above.

The per cent of increase for the various types of motor carriers is reported as follows:

	Northbound	Southbound
Certificated	62.4	146.5
Permitted	5.9	40.4
Proprietary	49.5	63.6
Interstate	29.6	67.8
Total	22.1	53.1

## PACIFIC COAST TRADE BEARS HEAVY PANAMA CANAL BURDEN\*

Tolls Paid, 1930-1940



Actual tonnage comparisons, as compiled from field check data at Pinole and Carquinez Bridge checking stations during August 1946 and August 1949, and projected to approximate total traffic for the year, are as follows:

	YEAR 1946		YEAR 1949	
	Northbound	Southbound	Northbound	Southbound
	Pounds	Per cent	Pounds	Per cent
Certificated	924,720	11.18	268,120	4.86
Permitted	2,832,267	43.44	3,595,780	65.23
Proprietary	1,073,870	16.47	806,610	14.63
Interstate	1,688,610	25.91	841,850	15.28
Total	6,519,467	100.0	5,512,360	100.0

	YEAR 1946		YEAR 1949	
	Northbound	Southbound	Northbound	Southbound
	Pounds	Per cent	Pounds	Per cent
Certificated	1,501,561	18.86	660,782	7.83
Permitted	2,865,924	33.49	5,048,435	59.80
Proprietary	1,604,653	20.16	1,319,995	15.64
Interstate	2,189,170	27.49	1,412,431	16.73
Total	7,961,308	100.0	8,441,643	100.0

No comparative figure for gain or loss of rail traffic between 1946 and 1949 is shown in the study, but estimated tonnage is shown for 1949 as follows:

	Carload frt.	LCL frt.	Total
Southern Pacific	1,076,000	27,440	1,098,000
Santa Fe	236,384	2,306	238,690
Western Pacific	125,475	4,605	130,080
Sacramento North'n	9,720	777	10,497
Interline-Western Pac. & Sacto. North'n	85,195	15	85,210
Total, all lines	1,532,774	53,143	1,562,447

The rail tonnage figures include the transportation of all commodities with the exception of sand, gravel, stone

(broken) and petroleum products in tank car movement. Truck figures do not include tank truck cargo, dump truck cargo, livestock, fresh fruits and vegetables, household goods, live poultry, explosives, auto drive-away, road building equipment, heavy machinery, power shovels, truck cranes, and other commodities requiring special equipment other than refrigeration. Besides this, trucks operated by federal, state, county and city agencies, pick-up trucks, and local trucks making trips less than 25 miles were also excluded.

Figures given here are from a 58-page report compiled by the research division of the transportation department of the California Public Utilities Commission, with Grant L. Malquist, senior transportation engineer, in charge of the study project. Information assembled is being used by the Commission as a basis for evaluating applications for trucking certificates and in fixing freight rates.

The report is a companion piece to one showing the cost of transporting motor freight between northern and southern California, featured in the February, 1949, issue of *Western Industry*.

# Both the Boss And the Help Can Cash in if They Try

**W**HETHER you like it or not, it certainly is too late to try to do away with labor unions, and I don't honestly think we should. I do say that if management uses a tool that is here and that it has, it can make a wonderfully constructive force out of the union. Instead of spending 50 per cent of their time fighting about working conditions, together they can solve some of the problems of U. S. business that really need a good solving and that unions can really do some good at.

There is a field in which labor unions could do wonderful work, *if they would*. That is a field, God knows, that management needs help in, but it isn't in the field of simply "gimme, gimme." Together management and labor have to find a way to make these backlogs of national orders yield more income for both stockholders and employees.

## Educate and Enlighten

Management *can* sell and enlighten labor. Management can make a free enterpriser out of every hourly worker in America!

How? Not by legislation any more. Not by fighting the unions any more. But by the strongest force in the world, namely, education.

I believe we must carry the use of education and training of our people to a far greater degree than we have ever done it before, and to a very much larger number of people. Labor unions, over the past few years, have made tremendous inroads in our social structure by haranguing the working class, and by making the worker class conscious.

With few exceptions, the ordinary tool of the labor agitator is to work the members of his bargaining unit up to

By **ROBERT E. GROSS**  
President, Lockheed Aircraft Corporation  
Burbank, California

a feverish pitch of excitement and expectation. He tells them that their wages are too low and that the bosses are getting rich.

I don't feel that management will be well advised to try to fight this kind of fire with the same kind of fire. I don't think that we can expect management to try to fight labor organizations through legislation and through the halls of Congress.

The really effective way to make the worker a good worker is to make him intelligent by giving him all the facts, and by giving it to him through the process of orderly education. This will



**ROBERT E. GROSS**

be the strongest weapon, not only to temper the radical element in the labor movement, but also to improve the efficiency and productivity of our businesses.

We must use the tool of education in our shops far beyond any degree to which we have previously used it. We have done a tremendous amount of work in the last few years in talking with supervision and trying to convince supervision that it is management and that it is a part of the management team.

All this is good. We must go a lot farther, however, and take it out to the man on the bench and convince him that he, too, has a stake in management.

Reams of educational material and hours of study classes have been put forth on the supervisory groups in businesses these last few years. Results have been good and are all in the right direction and should be continued and even expanded.

## Penetrate the Plant

Yet I believe we must go much farther than this and carry the same kind of educational material and effort down another notch or the assembly floor, to the machine shop, and the drafting room.

We in management have spent too much time talking with each other. We have got to tell our story to the workers. You must take your product to market if you want to sell it. The market for free enterprise is the worker. I for one intend to do this.

All this will take time and money and effort on the part of top management, and top management must be the one to do it. In the end it will be worth

(Continued on next page)

it, and it will come back to us many times over.

I may be guilty of taking too much for granted, but I believe the average laboring man in America today is a human being who wants to be properly informed. He doesn't particularly want to strike and throw bricks through windows. He is basically a law-abiding and peace-loving citizen.

#### **Fertile Soil**

With the prospects that he has ahead of him, the backlog of business that is surely in the offing, and with the educational tools that are at management's hands, he can be built into a wonderful free enterprise organism. He can keep not only our present system of living alive, but can improve it very much beyond anything we now think possible. He is fertile soil that needs to be worked on and management is the one to do it.

I think we underrate the intelligence of the average worker, his ability to understand the principles of business, his thirst for this knowledge. I don't believe that under the present system he thinks that is all he is going to get.

#### **Good Hunting**

As a result he is fertile hunting ground for the militant labor leader who convinces him that the labor movement is the only one that has any interest in his welfare.

It seems to me we must break down this impression in the minds of the working man that the only place he can go for information and for knowledge of his business is to his union agent. We

must make available to every worker on the payroll information, knowledge, facts that they have never had before and particularly, things in which we have always believed that they had no interest.

Elections are won in precincts by ringing door bells and talking with the people, not on the radio or bill boards or in the public places. Just so, the free enterprise must be won in the precincts of business and industry. National movements, trade associations, chambers of commerce and the like, all have their place and make their contributions. But the real battle ground is in the millions of individual workers in the businesses of this country, from the corner grocery store to the biggest industrial organization.

#### **It Can Be Done**

Just because a company is big does not mean we cannot tell the story to our people. It is harder, but it can be done. We must find the most expedient way of doing it.

If management of every business in this country, large and small, would recognize and assume this responsibility, I believe that the results of such a policy, vigorously pursued, will be electrifying. I believe that management will be astounded at the response which the labor force takes in the business and in the ability the labor force will have to improve its output.

If such a course were to be followed, it is not too much to expect that the top executives of a given company

would actually be willing to go down into the various shops and departments of the organization and devote a few minutes each day to talking in an informal and personal way with small groups of employees at a time, say, 25 or 30.

#### **Everybody in the Act**

At such talks the sales manager, for example could make a very interesting picture of the customer's reaction to the product. He could tell what the customer liked about it and also what he didn't like about it. He could show how the competition lined up, and relate little personal anecdotes about problems that he had in selling.

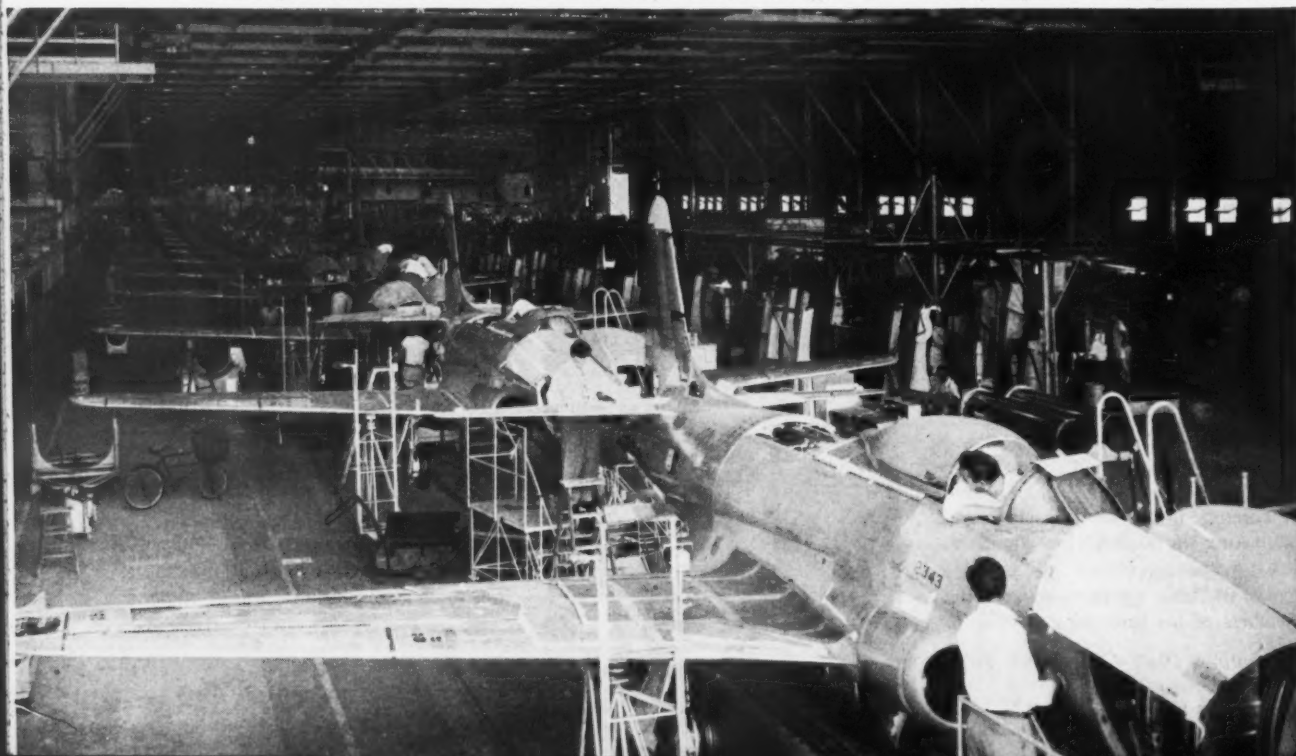
You never can tell how the same set of words is going to react on 25 or 30 different people. Maybe 10 or 15 of them won't get the point at all, but the other 10 or 15 may get it strong. On top of that, you may provoke a line of individual thinking on their own that may not necessarily be along the lines of the talk but it may lead to a lot of other collateral glimmers in the employee's mind that are just as beneficial.

#### **Talk Is Powerful**

Just the mere fact that we talk with these people on a day-to-day human basis can have a tremendous effect. And I wouldn't be beyond talking about the most sophisticated kinds of subjects either.

The treasurer or comptroller can well go into the knotty tax and amortization problems, what it costs to write off tools, what depreciation really is, and that it doesn't do a business any good

• View of F-80 production line at Lockheed Aircraft Corp., where latest type U. S. Air Force jet fighters are being manufactured.





just to make a little profit. It is necessary to make enough profits these days to pay stockholders something, to do development and research work, and to buy new machinery and equipment at prices three and four times what they used to be 14 or 20 years ago.

A corporation today has to generate a quantum of money, and the quantum of money which has to be generated through profits is different according to its individual needs. Employees have to be told that. It isn't enough for them to be told that the company has to make money to continue.

### They Can Be Shown

They can be very clearly shown why Company "X" has to make an extra two or three million dollars more in order to revitalize the very shops in which they are working.

I think the commonest, lowliest employee is interested in that fact, but we never tell it to them, at least personally we don't. We send out a lot of bulletins to supervision. Sometimes we send articles in the most glittering of generalities stating these facts. But we don't go into any personal details and dress it up so that they can understand it and appreciate it.

### How Unions Start

Labor has banded together and generally taken the union route, because it has been told in no uncertain terms by union agitators that it has no other route to take. Labor has been told that it can't get any other information or any other betterment than by being against the boss and by fighting with the boss.

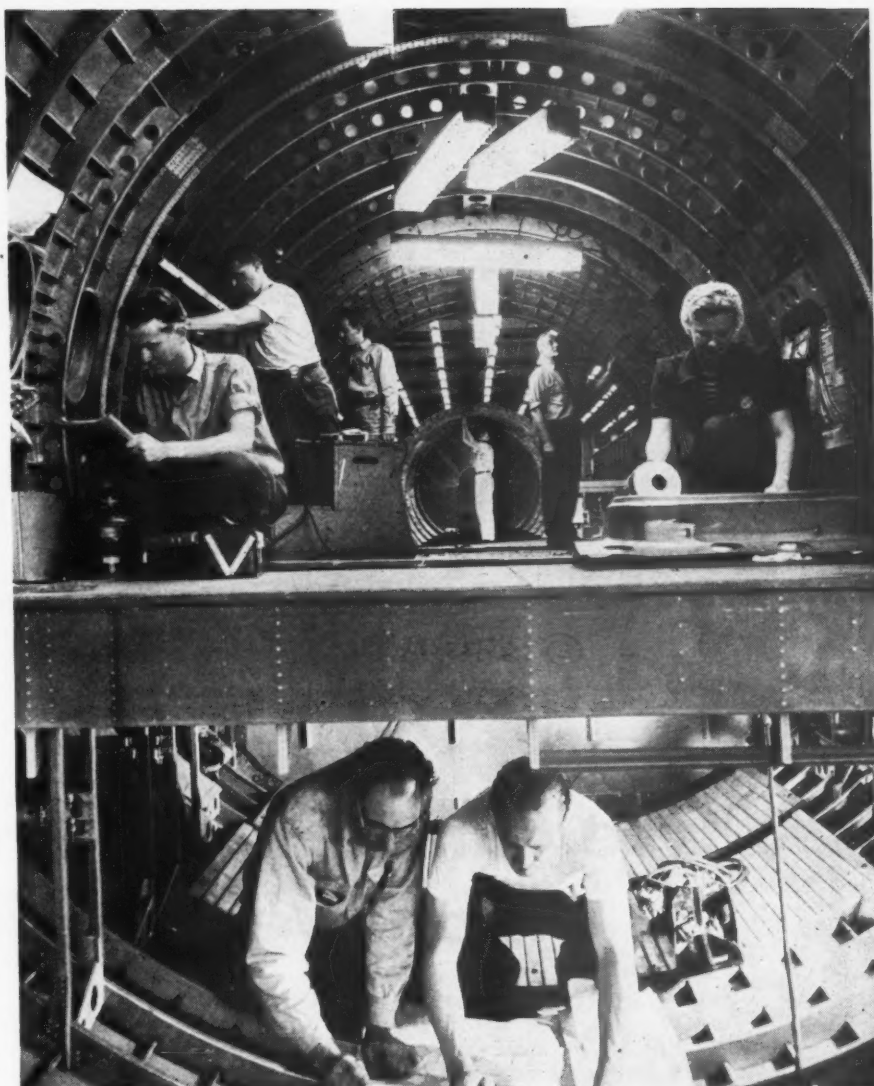
As a matter of fact, when a little company starts out on its own and has a few employees the chances are, if it is an average corporation under average conditions, that it is just one big family and everybody is working together for a common end. Maybe it gets a little big and somebody gets a union going.

### Result of Education

From that day forward, from the instant that the union is organized, the very nature of the personal relationships in the corporation automatically change. There is a line of cleavage immediately drawn. Employees line up on one side and management lines up on the other.

It is the same corporation, and the same group of people. They are making the same product and trying to sell it to the same people. But one day they are all working together and the next day they are all pulling apart.

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• This is the "inside stuff" of a Lockheed Constellation fuselage under construction.

The next thing you hear is that the corporation is growing too big for management to keep in touch with the employees; that the boss used to call everybody by their first names and now he can't, and that the corporation has gotten too big to have any personal touch in it.

I know this is the ordinary view and I know it is hard to overcome. But I believe we can't take that one lying down and we must find a way, even though the corporation is big, to disabuse that concept.

### Get the Right Slant

I have come to the feeling, and I stress this again and again, that it is wrong to oppose the labor movement on a class struggle basis and to battle

it using the same tactics that the union chairman uses. Management, I believe, can jump over this barbed wire fence of cleavage that is brought into the corporation between management and labor.

### Management Can Do It

Management can land in the middle of the hourly workers and completely disarm the old line labor union arguments by the simple device of personal contact and education along factual and absolutely factual lines.

The thing is that some of the labor groups are using this idea. They are using the very tools against us that I am advocating that we use for us. However, I think there is still time, but we must be quick about it, for right here at home and all through the world the challenge is being thrown at us.



• Efficient design of this warehouse plus latest materials handling equipment provide elements of cost reduction, stiff competition.

## "We Can Load an Order Faster Than We Can Bill It"

**"WE CAN** load an order faster than we can bill for it."

So states M. A. Compton, in describing the efficiency of his materials handling arrangement at the new Compton Transfer and Storage Company, Boise, Idaho.

He estimates that by mechanizing his operation, he can handle goods in one-third to one-half the time formerly required by manual handling.

A more important gain, however, is complete use of cubic footage made possible by this mechanization. To such an operation, that is the greatest source of profit resulting from an efficient materials handling technique.

Compton designed the new 68,000 square foot structure after personal visits to warehouses throughout the country that were considered to be among the finest. His operation is multipurpose, serving businessmen through storage of appliances, canned goods, newsprint, drugs, linoleum, etc., and the general public through storage of

household goods. Merchandise is about 75 per cent of the total volume.

The building, completed in March, 1949, was opened the following month. Although it is too soon to have specific statistics to show the value of excellent design and systematic mechanical handling, Compton already is able to cite major improvements over his previous experience in warehousing.

Among the various materials handling units employed is the battery-operated Transrider Stacker, rider-type stacker made by the Automatic Transportation Company, Chicago. Handling everything from palletized washing machines to davenports (on special eight by three foot pallets), the stacker operates in aisles only four feet wide.

The extremely narrow aisles were designed to make available for actual storage more of the cubic footage of the structure, increasing revenue considerably. Handling a lengthy item like a davenport in a four-foot aisle requires an unusual technique, because the electric truck cannot turn to stack its load.

This problem is overcome by raising the awkward load to the height at which it will be stored, and sliding it sideways into the desired position on a rack. The davenport is carried on a pallet which does not go into storage. Instead, the pallet remains on the forks of the truck, ready for the next load. For this brief phase of the operation only, two men assist, by riding up with the load and putting it in place.

Combined weight of the davenport and the men is only about 700 pounds, so the length of the load does not require additional counterweight on the truck. Normal load of the stacker for customary operations varies from 3,000 pounds with a 28-inch to 2,000 pounds with a 48-inch load.

Tiering to ceilings 18 feet high, provides storage in 8,450 square feet the amount of household goods previously requiring approximately 18,000 square feet. Items are called for singly in many cases, and the storage method permits them to be picked out quickly, one at a time.

As a sample of the speed of handling, 10 rooms of furniture (about 175 pieces, or 1,600 cubic feet of furniture) were moved from storage to the tailgate of the outgoing van in just 20 minutes. The job was accomplished by only three men and the electric truck.

When furniture is withdrawn from storage for shipment out, it is simply slid down from the rack onto the pallet, already in position on the forks of the truck.

For his new plant, which serves a population area of about 150,000—Boise's population is just 50,000—Compton maintains a fleet of 32 high-way trucks. These, plus the stream of motor vans used by customers, operate at a covered dock 225 feet long that can handle 20 trucks simultaneously. To keep the dock area clear, all telephone and power lines have been placed underground. The dock is set back 28 feet from the street in order to prevent traffic congestion.

Merchandise on delivery trucks is often moved out on pallets, which are brought back.

Despite its width, only three doors are used on this dock, thus reducing the need for aisles inside to accept traffic from the dock. On the main floor there are two four-foot wide aisles, each 160 feet long, a distinctive arrangement. In the basement, there are three longitudinal aisles eight feet wide, one feeder aisle, one stub aisle, and no other cross aisles.

The stub aisle is an important phase of the basement operation. When part of a carload has been moved from storage, and a full carload is to be brought in, the remainder of the earliest load is moved to the stub aisle, and its original position used for the new shipment. This makes it simple to reach the older merchandise first. Thus, no old goods remain in storage while newer material is shipped out.

The basement measures 165 feet wide and 265 feet long, and every foot

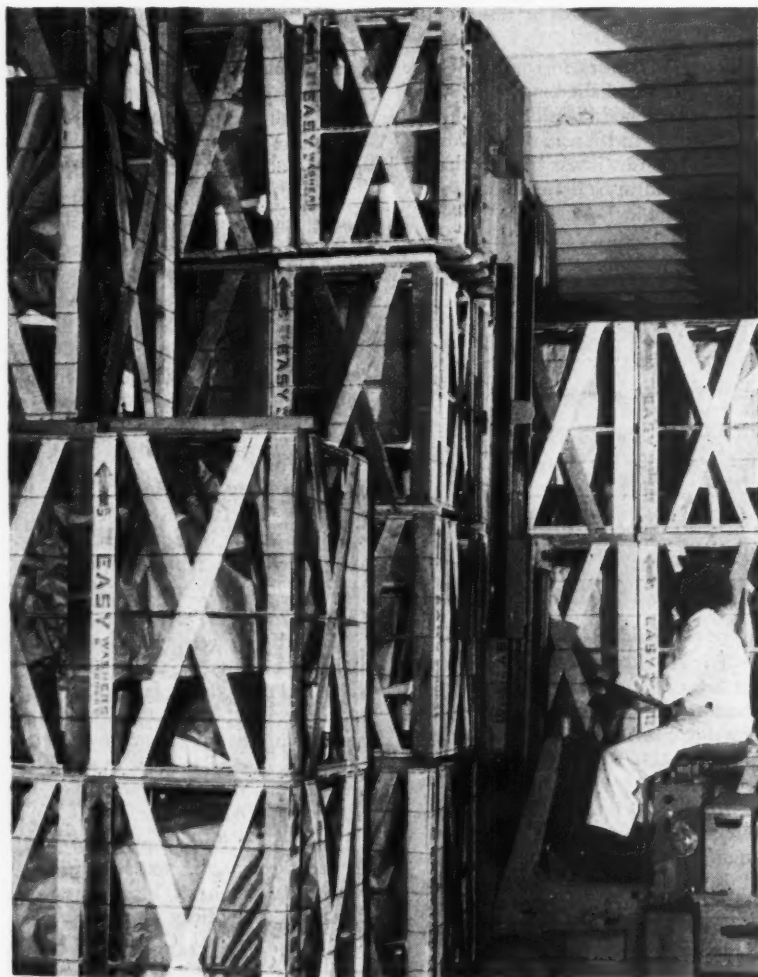
of space that might conceivably be used is loaded with merchandise. Size of the main floor is the same as the basement, but the lower level has a 10-foot ceiling and the ground floor an 18-foot ceiling.

In the basement alone, the company is able to store 115 carloads. A large amount of basement space is devoted to storage of canned milk. Milk is loaded six or more boxes high, and is tiered two pallets high.

In August, this warehouse received 110 carloads of merchandise at the railroad dock, which handles five cars at a time. There is no open dock on the railroad side.

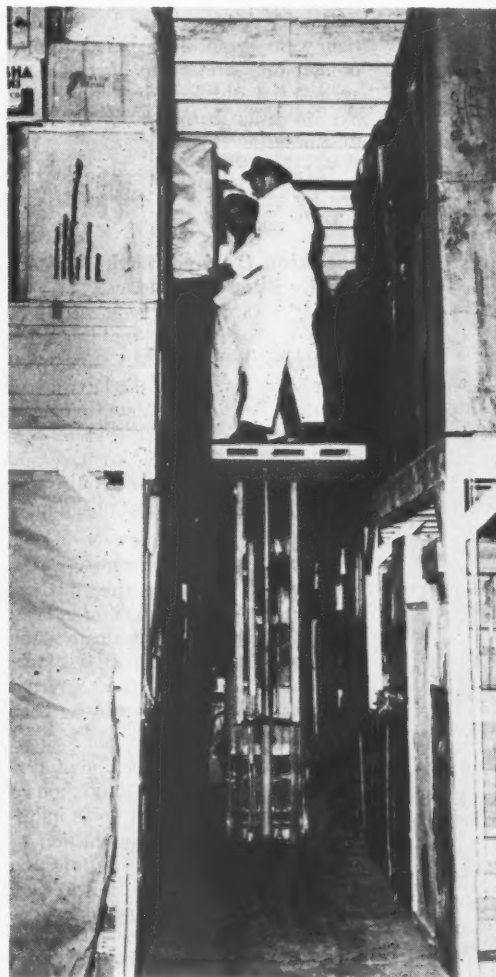
Incoming freight trains are broken up directly alongside the warehouse, resulting in speedy service. Despite being in the railroad center, the building is only four blocks from the wholesale district, and only three and one-half blocks from the center of Boise's business district. The warehouse is just off an arterial highway.

• These fork lift trucks can get into small places, and stack merchandise to ceiling.



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• This is how they work in a tight spot.





## TECHNICAL SHORTS

### Sump Pump Eliminates Cannery Waste

A unique sump pump installation eliminates cannery waste for the Kadota Fig Association, Merced, California.

This cannery drains fruit pits, damaged and poor fruit, and other fruit-handling wastage into a sump. Although the sump is outside, decaying fruit could not be handled fast enough to eliminate odor.

With this installation, waste is picked up by the pump and discharged into a large fine mesh rotary screen. Water drains off into settling tanks and the remaining trash is fed to a conveyor belt by rotary motion of the screen.

Conveyed to a barrel-loading station, waste is quickly disposed of in an economical, sanitary manner. On an average day, the loading station yields five 55-gallon barrels of waste in an 8-hour shift.

This special purpose, single-stage low lift pump is a 12" Byron Jackson Ditch Pump.

### Precision Casting With Plastic Bonded Molds

Practicability of precision casting by means of plastic bonded molds is being investigated by Eugene M. Cramer, metallurgist on the staff of the Division of Industrial Research, at State College of Washington. His objective is to produce a cast part having accuracy and surface quality, such as to require very little, if any, machining or finishing.

Molds for making dies have been produced in the WSC foundry with a tolerance of .001" by this method. Working with aluminum alloy and cast iron, Mr. Cramer has obtained sound castings with tolerances of .002" per inch, and exceptional surface characteristics. Steel castings have not yet been satisfactorily produced.

Pioneer work on this method of casting was done in Germany, and is known as the Croning process. It holds industrial possibilities in the production of precision castings for plastic injection dies, glass molds, gravity and pressure die casting molds, and similar uses. Cramer expects to experiment with silica molds in the near future.

### Largest Spraying Project Now Taking Shape in Oregon

An aerial spraying project, larger than anything ever undertaken in forest protection history, is shaping up in Oregon as a climax to a long struggle to control an outbreak of the spruce budworm on both sides of the Cascade range.

Ernest L. Kolbe, chief forester for the Western Pine Association, was named chairman of an action committee formed at a general meeting in Portland in September.

Reported at that meeting:

1. A kill of about 97 per cent was achieved on 267,000 acres aerially treated with DDT in oil, last May and June.
2. Total infested area needed spraying next year is 2,232,000 acres, mostly in Blue Mountain area of eastern Oregon.

Enough facilities to treat this huge area can be marshalled, now that spraying can be timed according to altitude of the forest and spread over a month's time. Previously, it was thought that all spraying had to be done during a two-week period in June.



### IDEA PAYS OFF

Edward Dash, welding engineer at Long Beach Naval Shipyard, demonstrates a welding attachment he invented. It has brought him a check for \$1,275 from the Navy Department.

This device is used with a standard arc stud-welding gun to weld aluminum pins to aluminum bulkheads. It saves the Navy many dollars and man-hours when fiberglass insulation is installed on ships with aluminum bulkheads.

### Pipe Cleaning Increases Carrying Capacity

Two examples of the efficiency and economy of in-place pipe cleaning were demonstrated recently in Glendale, Calif.

In one instance, a 9,000-foot section of 23-year-old cast iron pipe was cleaned in 47 minutes at a rate of 191 feet per minute.

Tests showed that after cleaning, the velocity of flow increased to 6.2 feet per second from a former rate of 3.5 feet per second. Pressure was reduced from 147 psi to 130 psi. Discharge quantity rose from 4.75 mil gpd to 8.80 mil gpd.

Prior to the actual run of the tool through the pipe, a section was cut out in two hours with an automatic pipe cutter, the tool loaded in the pipe in 15 minutes and the section replaced with steel couplings.

In another instance, 1,000 feet of 30-inch pipe were cleaned in only 58 minutes, with the tool traveling 190 feet per minute, using approximately 9,000 gallons of water per minute.

These two examples show the speed and efficiency of modern pipe cleaning methods which can quickly restore to almost their original carrying capacities, many sections of pipe which would formerly have been scheduled for dig up and replacement.

Los Nietos Pipe Cleaning Division of Flexible Sewer Rod Equipment Co. cleaned these sections of pipe.

### Two-Week Job Done in Nine Hours

A 100-foot 100-ton stiff leg crane at Oakland Army Base just had its mile-long steel cable replaced with a new strand. Ordinarily this operation takes two weeks, using eight to ten men.

This time, seven men accomplished it in nine hours by attaching a spare cable reel to a power plant, splicing the old and new cables together by welding, and rolling the old strand on the spare reel as they pulled the new five-ton steel wire through 40-odd sheaves of the huge cargo-lifting device.

The cable that was replaced had been in use through the war years, lifting thousands of tons of heavy cargo, including locomotives, loaded aboard ships in Terminal Operations at the Oakland Army Base.



## Hop Drying Research Seeks New Methods

Improved methods of hop-drying are being sought in a new project of the Division of Industrial Research, at Washington State College. The cost of drying green hops in the Yakima Valley is a considerable item in production expense, and sun-dried European hops are preferred by some brewers. Recent devaluation of the British pound sterling has increased the threat of foreign competition to local hop growers.

Purpose of the WSC research is to furnish the local industry with lower operating costs and a better finished product, and also to eliminate the fire hazard during drying. Long-range objective is to develop a continuous, single-process hop drying machine which would receive the green hops at one end and turn out the baled product at the other.

## Wood Molasses

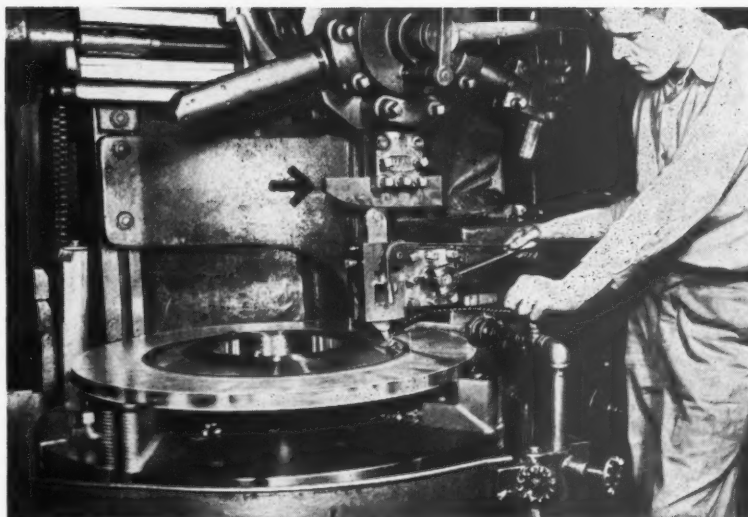
Wood molasses is reported to equal cane molasses in feeding value for feeding lambs. J. L. Van Horn, Montana Experiment Station at Bozeman, points out that the feed is palatable to lambs despite the strong flavor and that no carryover of the wood flavor to the lamb meat has been found.

## New Rigging Idea Saves Three Weeks

Saving three weeks valuable production time and several thousand dollars in construction costs was the recent net result of an ingenious idea tried by MacMen Inc., enterprising Los Angeles equipment setting firm, when assigned the job of assembling and erecting latticework conveyors for the newly organized Torrance (California) Sand and Gravel Company.

Ignoring the time-proven but slow and expensive procedure of using the help of a crane to assemble the conveyors piece by piece high on erect pinions, MacMen crews conceived the plan of assembling the openwork shafts first on the ground and then raising the completed but flimsy structures into position. An estimated three-quarters of the crane time which would normally have been used was saved, as well as about one-half the labor.

Key to success of the operation was the method used to rig the crane cables when raising the assembled conveyors. This had to be done so that the weak 120-foot long shafts would not warp or break while in the air. The lifting force had to be controlled carefully so that it would be spread evenly over the entire length of the shaft during the lift upward into position.



• Use of a cam block attachment with a turret lathe materially speeds up production of special contour discs. Shop flexibility is improved, too, since any of a shop's lathes can be adapted to this method. The disc being shaped in the picture is for a big steam turbine. The cam plate (arrow), which is in contact with the roller, has the exact shape required. It is a simple matter to change the cam block for a profile required. Using this method, a machinist, such as this one at Westinghouse Electric Corporation's Sunnyvale, California, plant, can contour a disc in about two hours.

## Let a Professional Wrap Up Your Problem

Don't work your head to the bone in an effort to make merchandise "appealing" to consumer-shoppers. Let the professionals do it for you, and save yourself from financial and industrial distress.

Such is the good advice of Howard F. Isham, president of Western Litho-

graph Company, San Francisco, who, being one of these professionals, knows whereof he speaks.

For instance, he cites the case of the salmon cans. For years they have been packed with a red label. Some time ago one of the larger salmon packers had a special label designed, which they thought very superior and striking. And logically it was. A jet black background and a well-displayed name were included, as well as a description of the product and an illustration appealing to the appetite.

But the salmon thus packed just did not sell. Mrs. Housewife had been "conditioned" to buying salmon in cans with red labels, and either she didn't recognize this item as salmon, or if she did, she assumed that it was a different kind and she might not like it.

Another instance—in fresh frozen foods. An efficient package was produced in the form of a fibre can with metal tops and bottoms. It looked like a tin can. Consumer acceptance was good, but shortly after this product appeared on the market, reports were received of spoilage.

Investigation revealed that women picked it up with other canned goods and put it on the pantry shelf instead of in the freezing section of the refrigerator. Since it looked like canned goods, and the instructions to "keep frozen" were not sufficiently emphasized, dissatisfaction resulted.

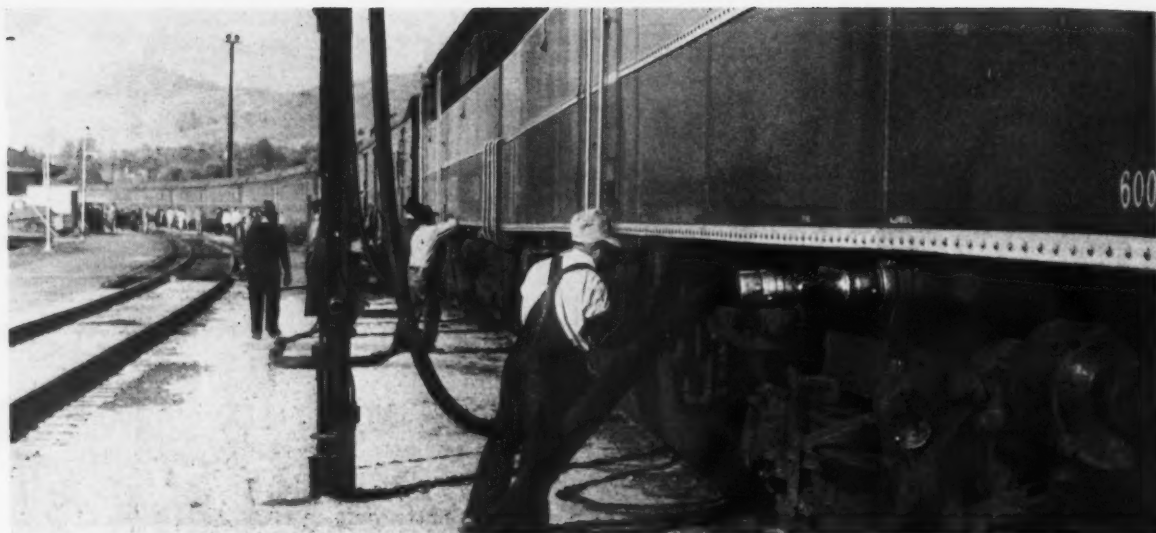
With proper label design, or with adequate advertising, consumer adoption of this package would have been considerably accelerated.

## Waste Utilization Plant Develops Two New Products

Canners League of California Experimental Waste Utilization Plant at San Jose, a seasonal operation, developed this year two new products. They are: 1. A dried pomace suitable for incorporation in stock feed, containing all the fibre in the waste and some of the sugar and other soluble material; 2. A concentrated juice or syrup fraction that can be fermented to produce industrial products or incorporated into stock feed.

The project was a joint government-industry undertaking. Canners League of California arranged for the plant space, processing equipment, plant labor, superintendent, suitable quantities of fruit and vegetable waste material, necessary chemicals for its treatment, and the financial sinews for the plant's overall operation.

Western Regional Research Laboratory, U.S. Dept. of Agriculture, provided technical personnel for the plant.



• Servicing the Shasta Daylights on a fast time schedule is done every day by these crews, working in teams, at Klamath Falls, Ore.

## Teamwork Makes the Railroad Go and Helps Express Runs Click

**S**PEEDY servicing of diesel locomotives and streamliner cars was a problem that Southern Pacific had to solve before inaugurating their "Shasta Daylights" last July on the San Francisco to Portland run.

Midway of the 718-mile trip, each of the 6,000 horsepower locomotives would need a refill of 1,200 to 1,500 gallons of fuel oil, according to engineering calculations and practical experience with diesels on other trains of the Shasta Route.

And in winter, they would be especially thirsty for water. About 4,000 gallons of it would be needed for each locomotive, to refill the steam generation system that heats the trains. Running gear must be checked. Cars would need ice and water. Garbage would have to be removed from the trains.

Klamath Falls was selected as the servicing point. The train from Portland was scheduled to arrive at 2:13 p.m. Superintendent J. A. McKinnon informed master mechanic W. O. Brown that only ten minutes could be allowed for servicing and inspections. Those jobs would have to be done while passengers were entraining and detraining.

No delays would be excused; it would be necessary for the train to depart on time for a perfect "meet" with the northbound train at the siding at Grass Lake at 3:25 p.m. Northbound train was scheduled for similar servicing when it arrived at 4:31 p.m.

Pipe lines were run from fuel oil tanks to points at either end of the long station platform where the locomotives would stop. Hoses were coiled there under cover. Water connections were made in a somewhat similar manner. Markers were placed for guidance of the locomotive engineers in bringing their engines to a stop at the right point each time. By so doing, the three oil tanks and three water tanks of the locomotive would be opposite the three oil hoses and the three water hoses.

### Teamwork Does It

Under direction of Roundhouse Foreman S. C. Selby, teams of six roundhouse employees were assigned to the job of refueling and watering the locomotives. Each move was rehearsed in advance.

Watering hoses for the cars had also been stretched along the platform. Ice was cut, washed, and placed in carts spotted on the platform. Special garbage carts were ready to roll directly under the garbage chutes as soon as the train came to a stop.

When the first train arrived on the afternoon of July 10, the servicing crews were waiting for it. Fuel and water hoses were uncoiled for engine attention. Caps were removed quickly from the locomotive's oil and water tanks, and adapters for the fuel hoses were screwed into the openings of the fuel tanks. Then quick connections of the hoses to the adapters was made.

In a matter of seconds, oil was flowing into the fuel tanks under pressure.

One man remained with each of the three fuel hoses. The other three men then picked up the water hoses and attached them to the steam generator water tanks. Water was fed into those tanks at high pressure.

In the meantime, a man with a ladder had climbed up to the windshields of the locomotives and polished them for the second half of the trip.

Back along the train twelve men and women under direction of car foreman R. B. Gutenberger were at work. Four men removed garbage and supplied ice and water. Another crew of three men and three women watered the other cars. Two inspectors made a complete check of the train for possible mechanical defects.

All this work was performed on the side of the train away from the station, to avoid possible hindrance to passengers.

With minutes to spare, the locomotive servicing job was done. Hoses were disconnected and tank caps replaced. Each employee in these crews had been well schooled and rehearsed in his duties; the train was easily serviced and inspected within the allotted time.

Since that first day, servicing of the diesel engines and cars has become routine, and railroaders expect no delay when they roll into Klamath Falls.

## Before You Start Your Pension Plan Listen to Some Good Advice

**T**HE action of what many experts believe to be an extra-legal President's steel board, on the Steel Industry case, reported September 10, may result in costing American business and industry billions of dollars in the years to come. Pensions, once established on the basis of being paid for by the employer alone, could easily become a temptation for year-after-year negotiation by the union.

### What Effect?

If the union, with the friendliness of the government, is successful in making the steel industry pay the 10 cents per hour for employee benefits, without employee payment of any kind, what is going to be the effect on the millions of citizens who now pay half of their own pension costs? They have unions. Their employers, including the various governmental agencies, have or can get the money from the public. Taxes could be collected.

### Just the Beginning

And the 10 cents per hour is but the beginning. How about the small employer, with say 20 employees — and there are thousands in this class—who already pays more than most of his bigger competitors in wage rates. Where will he go?

The insurance company won't sell him group insurance because their minimum requirement is 25 or more em-

ployees who are eligible. The union will sell him, in combination with somebody else and then maybe a new and bad precedent will be set in his industry.

Social Welfare additions to the employee cost account involve insurance problems and these are highly technical. The unions already have consulted the insurance experts. They know what they want, and it is not something which will be of particular advantage to the employers.

The employers should go to the insurance companies and get the best advice they can find before moving in any direction. They should know what they are paying for and what they will get in return. And this should be done now, right away, before the union comes in with its plan. The best preliminary answer to a union's demand is frequently another and different offer from the employer.

### Good Information

One of the standard works consulted by insurance people is "Pensions, Bonuses and Profit Sharing Plans," written for insurance agents by Meyer M. Goldstein, of the Pension Planning Company. In this publication Mr. Goldstein warns insurance agents, who are in many cases familiar with group programs:

"Do not experiment where your client's welfare is at stake. Both in the

field of Self-Administered Plans and in the Home Office of those companies that sell Group Annuities, there are men who have devoted the better part of their lives to the subject of designing Employees Pension and Benefit Plans. It seems common sense that such men must have learned many things 'not to do' as well as many things 'to do,' and you should protect your clients by making this experience available to them."

### Use Competent Counsel

Employers should call in a high grade insurance company for advice. They should take a representative of the insurance company, if possible into the negotiation, as a non-talking advisor.

Recently a union offered a welfare plan which looked good to the employer. Besides it was somewhat cheaper than those offered by the insurance company consulted; that is, the first cost, without dividends considered. The employer went along with the union, he to pay all costs, giving the money to the union to be given to the insurance company.

### One Sad End

After the signatures were on the contract the matter of who was to get the dividends came up. These were to go to the union—and there was nothing the employer could do about it. This is only one angle. There are many.

## Life Begins at 65, or In Pensions We Trust

Much head-scratching and ear-bending goes on these days among employer-executives, who are presently pondering the point: "Should I adopt a pension plan?"

Research reveals that these pension-ponderers seem to place their planning in one of five categories: (1) "To heck with 'em"; (2) the "Copycat"; (3) the "Forever Student"; (4) the "See Mr. Jones—whatever he decides is O.K. with me"; (5) the "Give me something to read that I can understand."

(1) says: "To heck with the employees. They're just looking for something for nothing." (2) says: "Let's see

how Mr. Big did it. We'll copy him." That's all right, but by this time Mr. Big has made a few changes to take out some bugs that No. 2 doesn't know about. (3) says: "Get me all the data on this." He gets so wound up in small print that he doesn't see the light of day for months. (4) says: "See Jones about it." What he doesn't know is that Jones really belongs to school No. 2 and gets snafued anyway. (5) says: "Let's find out the right way to set up our plan."

That is the group toward whom Joseph Schwartz, superintendent of Pension Trust Sales, Occidental Life of California, directed his book, "In Pensions We Trust," from which this is a paraphrased excerpt.



# Employers Wide Open Legally On Half a Dozen Things

**O**NE of the outstanding statements of the year on the employer's present legal position (and that is about 90 per cent of his problem in labor relations) was given by George O. Bahrs before the Pacific Coast Gas Association at Santa Barbara in September.

Perhaps the most important point he stressed was the fact that the employer is "wide open" on merit increases, pension plans, group health, accident insurance and severance pay.

Second is his discussion of the value of the no-strike clause, and third the value of bargaining in good faith, which employers may easily overlook, and which apparently means the necessity of having an adequate record in writing of all negotiations.

Evidently, the legal phases of employer-union relationships are fast moving and changing in major aspects, for Mr. Bahrs stated he had checked back for a period of something more than six months and found the results "startling, not to say bewildering."

## How Can Employers Know?

Starting his legal discussion with bargaining and the knowledge that employers must bargain with the representatives of their employees, he asked the question: "But, how is the employer to know whether or not, at any given time, the union is in fact the representative of his employees?"

"The law of course," he said, "provides a method whereby a secret ballot election is conducted by the NLRB and the results are certified by the Board. The employer has two choices in this matter. Should he file a petition or should he make the union do it?"

"While there is a line of decision holding that the employer may refuse to bargain collectively with the union where he honestly doubts the union status, there is also a line of decisions equally good that an employer is guilty of refusing to bargain where he insists that the union be certified where the employer has so shown an anti-union

attitude or has engaged in discriminatory or anti-union conduct."

Under these circumstances, the employer who refuses to bargain has all the odds against him.

On the other hand, a recent decision, rendered in May of this year, of the NLRB, in the case of the Continental Southern Corporation, the Board held that an employer has the right to file a representation petition whether or not there exists any reasonable basis in fact upon which the employer may question the union's claim to majority representation. A part of Mr. Bahrs' quotation in this case follows:

"In this case," the Board said, "the question of representation which was raised by the union's claim for recognition was put in issue when the employer refused to recognize such claim.

"Under these circumstances the employer had a clear right to file a petition under Section 9-C(1) (b). It is im-

material whether or not there may have been any reasonable basis in fact upon which the employer might question the union's claim to majority representation."

On this Mr. Bahrs commented: "It would be futile to hazard a guess how many employers may come to grief by their failure to avail themselves of the proper procedure in this type of case, but it is obvious that the labor relations man must be alive to all the legal niceties involved in order to avail himself of the rights the law gives him."

## Unilateral Increases

Dealing with unilateral wage increases, he reported from the record that the employer dealing with a union of his own employees is not permitted to offer a wage increase to his employees without consulting the union, greater than the amount offered recently in negotiations with the union, where bargaining had not been broken off. The Supreme Court, quoted the following language, in upholding the NLRB, taken from the Board's opinion:

"We do not here have a unilateral grant of an increase in pay made by an employer, after the same proposal has been made by the employer in the course of collective bargaining . . ." (NLRB vs. Crompton Highland Mills.)

"Here again," Mr. Bahrs stated, "is another example of a distinction of which the labor relations man must be thoroughly aware in order to avert unfortunate consequences."

Merit increases, he found, were not permitted to employers without prior reference to the union. Also, that this item might be opened by the union at any time, regardless of whether the contract was open or not. (Allison Case.) The Supreme Court refused on October 11, 1948 to review this decision, (22 LRRM 2564). This case "also opened the door as to furnishing information to unions concerning matters respecting which unions desire to bargain collectively."



**GEORGE O. BAHR**  
Former President Employers Council  
of San Francisco  
Member, War Labor Board



"In April 1949, in the Inland Steel case, the Supreme Court refused to review the decision of the National Labor Relations Board declaring that pension plans and insurance benefits lie within the mandatory area of collective bargaining.

"The term 'wages' as used in the Act must be construed to include emoluments of value like pension and insurance benefits which may accrue to employees out of their employment relationship."

Then came, in order, the cases of Cross & Co., Hercules Powder Co., vs. Brookfield and Allied Mills. In Cross & Co. the Circuit Court held the employer must bargain on group health and accident programs as "wages."

In Hercules Powder, the Virginia Supreme Court ruled that an employer putting out a handbook explaining its severance pay program entered into a contract with each employee accepted by going to work or remaining at work.

#### Continuous Bargaining

Allied Mills contended it did not have to negotiate on pensions as it already had a contract in effect for a definite period and so under the Taft-Hartley Act did not have to agree to any changes effective prior to the reopening of the contract. The Board said that in respect to unwritten terms, the

obligation remains on both parties to bargain continuously.

"We are," Mr. Bahrs said, "wide open. We are wide open in merit increases; on pension plans, group health and accident insurance and on severance pay. The door has been opened for the unions to require the employer to furnish them with information concerning any subject with respect to which the union desires to bargain."

#### No-Strike Clause

No clause is more important to an employer, in a labor contract, than a good no-strike statement. This value was stressed by the speaker in discussing two cases, Dorsey Trailers Inc., and United Elastic. In the first, the contract contained grievance machinery, but was without a no-strike clause. A strike occurred. The NLRB upset the claim of the company that provision for a grievance procedure includes an "implied covenant" not to strike. . . .

. . . "Congress," the Board said, "specifically preserved and protected the right to strike. . . . It is well recognized that the right to strike may be waived through a no-strike clause in the collective bargain. . . . We find no waiver in this case."

In the Union Electric case the collective bargaining agreement contained a no-strike clause, yet the employees

struck. Under the circumstances the Board held that the employer could refuse to meet or discuss anything with the union until the strikers returned to work. The employer could solicit strikers individually by advertisements, letters and otherwise to return to work. The employer could set a deadline and notify the employees that they must return to work before this time or lose their employee status by discharge. And, finally, the employer could re-employ such of the discharged workers as it saw fit and refuse to rehire the others.

Employers have to bargain in good faith with a union during the term of a contract, on pension plans, health and welfare programs, severance pay, merit increases and other things. But, you do not have to agree and the employer's legal obligation is fulfilled, provided of course, that you have bargained in good faith. "You may not give merit increases without prior consultation with the union, but I don't think that the decision means that you have to get the permission of the union before you can give them to your employees." And remember the value of a no-strike clause.

EDITOR'S NOTE: See *Crompton Highland Mills, vs. NLRB*, from Supreme Court quotation of Board language, previously quoted.

#### Ford Pension Plan Typical of Non-contributory Programs

Ford Motor Company set the pattern for the settlement of the steel strike, when it signed an agreement with the CIO United Auto Workers, under which the company undertook to pay the bill for pensions and to share the costs with employees for social benefit insurance, as it had in the recent past. The company agreed to set aside 83/4 cents per man hour of all eligible employees, to name a trustee of its own choosing, and to joint administration of the benefit structure of the pension arrangement.

The pension is \$100 a month, including Social Security benefits of the individual, who is employed 30 years and effective at age 65, or at 65 or older, with less than 30 years service, a pro rata schedule. Disability retirement is included. "Any future increase in the old age benefits payable under the Federal Social Security Act shall reduce the amount of such increase the portion of the benefit payable under this plan." So reads the agreement. This contract runs for five years from March 1, 1950, and the parties are prohibited by its terms from any changes during the period.



Robert F. Black, right, president of The White Motor Company meets A. W. "Trixie" Triganza, who has 70 "White Years" in his family. The Triganza family got into the business of driving White trucks very early. "Trixie's" father, Bill Triganza, was once a horse-shoer for Farnsworth & Ruggles, operators of San Francisco's famous low-bed wagons, at the turn of the century. When Whites replaced horses, Bill traded his hammer and tongs for a steering wheel. "Trixie" and his brother, Ray, soon followed their dad's example, and today the family boasts a total of 70 "White Years."

#### Bethlehem Follows Ford in Much the Same Pattern

After 30 days of strike, Bethlehem steel workers in West Coast plants, like those elsewhere in the country, were going back to work November 1, with the pension and insurance dispute settled. Bethlehem, already with a non-contributory pension plan in effect for some 26 years, reported some amendments to that program, together with a contributory social insurance plan, providing death, sickness and accident and hospitalization benefits, as the settlement terms.

In a statement issued by Eugene G. Grace, chairman, it was stated the "principal amendment, which is subject to stockholders' approval, will provide that the minimum pension of \$50 per month will be increased to \$100 per month for pensions to be granted to employees with 25 or more years of service at age 65 or over. Pensions payable under the plan are reduced by amounts payable under the Social Security Act." The pension agreement will not be subject to strike for five years.

# Wages Rise in Service Trades; Basic Industries Static

**E**MPLOYEE pensions and social insurance plans, for the first time, take up nearly three pages of the monthly report of the Bureau of Labor Statistics dated October 1. This sudden shift of interest from wage happenings represents, first, the report of the Steel Industry Board; second, a sharp pointing up, by the report, of a movement toward employee benefits in pensions and life and industrial insurance which has been growing steadily over the country since early in manpower shortage days of the late war.

"Before the end of September," the Bureau's report states, "the Board's recommendation" (of 10 cents an hour, for a company-financed insurance program at 4 cents per hour and a company-financed pension program at 10 cents per hour) "had been accepted by a number of smaller steel manufacturers and fabricators, including the Portsmouth Steel Corp., the Standard Steel Works Division of Baldwin Locomotive, and John A. Roebling Sons Co. Prior to the Board's report, American Can and the Steelworkers had agreed to replace a contributory insurance plan with a company-financed plan and on September 30 reached agreement on such plan, costing the company approximately 6 cents per hour. Some 15,000 workers in 28 plants of the company were affected. The Armco Steel Corp., negotiating with an independent union representing 9,000 employees in three plants, extended a contributory pension plan to yield a minimum of \$100 a month on retirement, including Social Security benefits. Under the old plan, benefits ranged from \$60 to \$65 a month upon retirement." (Also, Kaiser in the West, went with the Board's report, for the steel operations.)

"The strike of 17,000 United Rubber Workers, CIO, in seven plants of the B. F. Goodrich Company ended on September 30 with an agreement to extend the existing pension and insurance plans up to a total company cost of 10 cents an hour. These voluntary plans were operated by the company for many years, with the company bearing only part of the costs. They remain voluntary and contributory. The new agreement is to run until February 1951, with one wage change opening, by either party, after April 15, 1950.

A check of the detail in the report on individual wage changes by industry groups and by individual companies shows the same division as reported last month; the service industry employers such as publishing, printing, construction, wholesale, retail, warehousing and transportation, in the main continue to raise wages; while the employers who operate basic industries, such as steel, lumber, cotton, paper and so on, are not granting many wage increases.

**Textiles** — One company, making elastics, increased pay 2c per hour; the 12 others, in New England, the South and Middle West did not. Three of the 12 accepted some added costs in employee insurance benefits.

**Apparel**—Six companies, employing more than 12,000 people. Five no wage increase, but two started 1% of payroll contributions toward employee retirement funds; and one began contributing to employee insurance plan. One, a Los Angeles Cloak Manufacturers Association, raised base rates from 6% to 13%, without employee benefits.

**Lumber & Furniture**—Twenty bargaining units, with more than 180 employers. Six groups, 63 employers, raised wages, the others did not. Four did, or

will provide, employee insurance benefits. Total these 19 employers.

**Paper and Allied Products**—Forty-eight employers in 17 units. Four individual employers raised wages; one added company paid life insurance for retired employees. Another, who raised wages also, added insurance benefits.

**Leather** — Eleven companies. One dropped a 12½ cent cost-of-living bonus after 18 months. Five no wage change; three added to employee benefits including social insurance. Two raised base rates 2½c; one straight 2½c; one 3c; one 5c. Last three added insurance benefits.

**Stone, Clay & Glass Products**—Three units. One association in 12 states, 28,000 workers (NBOP-A), no wage increase, but joint committee to study and report recommendations for retirement and death program after January 1, 1950. One employing 300 people raised wages 8c per hour; one, 200 people, no wage change, 4 paid holidays; 3 weeks vacation after 15 years and company paid insurance.

**Metal Working**—This classification, along with textiles, has been slow on wage increases all year. Total employment by employers covered in this report about 195,000. Of these, 105,000 work for Ford Motor. With bargaining units totaling 86, 27 of these have installed or increased contributions to some form of employee social insurance or pensions, or have agreed with their unions to follow, generally, the pattern set by the steel or auto industry. Mostly, these agreements deal with social insurance. Some added holidays or bettered vacations.

**Mining** — Three companies, all in West. One granted 2c hour. Two mines closed, made no increases.

**Food and Kindred Products**—Thirty-five units. Twenty-six raised wages; nine did not. Eight undertook some form of social insurance for employees; most had increases in fringe items.

**Chemicals** — Seventeen units, 13 raised wages, four did not. Low 3c, high 8c. Four, all in east, improved employee insurance benefits. Most others added some fringe benefits.

**Rubber**—Eight units, including B. F. Goodrich Co., covered above. Of seven, one decreased piece rates, average 11c per hour for six months; five increased rates, from 2½c piece to 5c hour high; four of these, one added hospital and life insurance, surgical plan company paid; one improved company paid life insurance; another improved hospital and life insurance plan; one doubled company paid life insurance. The fifth agreed to negotiate pension plan. The remaining company made some equity adjustments and agreed to a six-month wage reopening clause.

• What is this gal at Western Stove thinking about mostly: marriage or a pension?



# GENERAL WAGE CHANGES IN PACIFIC - ROCKY MOUNTAIN REGION

NOTE: This tabulation only reports changes. Information on the large number of contracts renewed without change is unavailable. Therefore the tabulation should not be construed as an indication of the overall trend.

Compiled from various sources by Bureau of Labor Statistics, Wage Analysis Branch  
(Where initials of unions are given below: A=A F of L; C=CIO; I=Independent)

CALIFORNIA	Location	Date	Amount of Increase	Number of Workers	Other economic Benefits
<i>Stone, Clay, Glass Products</i>					
San Diego Co. Rock Producers Assn.	San Diego	7/20	5c	IWOE—A—15	Retro 7/16; imp. vaca
<i>Wholesale Trade</i>					
5 wholesale bakeries	San Diego	7/16	(1) \$3 wk. (2) 10c	TCWH—A—150	(1) Salaries (2) Hourly workers
San Diego Beer Dist.	San Diego	7/16	\$3 per week	TCWH—A drivers	
Standard Brands	Los Angeles	6/17	\$3 per week	TCWH—A 27 drivers	
Grower-Shipper Assn.	San Benito, Monterey, Santa Cruz	7/49	5c	TCWH—A	Retro. 4/1/49
<i>Transportation</i>					
San Diego Trans. System	San Diego	6/19/49	2-3 cents	IBEW—A—200 maint. workers	
<b>COLORADO</b>					
<i>Lumber</i>					
Newton Lbr. & Mfg. Co.	Colorado Springs	6/27	10c	AFL—30 Glaziers	
<i>Paper and Allied Products</i>					
6 paper companies	Denver	6/15	5c	TCWH—A—60	
<i>Clay, Glass, Stone Products</i>					
Ideal Portland Cement Co.	Fort Collins	6/3/49	5-9 cents	CLGW—A—135	
Denver Fire Clay Co.	Denver	6/15	None	MMSW—C—150	Dbl. time for hol.; 3 wk. vac. after 15 yrs.
<b>OREGON</b>					
General Foods Corp.	Hillsborough	7/49	2½-10½c	IUOE—A—30	Add 5c 2nd shift; 10c 3d. 2 paid holidays
<i>Lumber</i>					
Grand Rapids Store Equip. Co.	Portland	7/8/49	Avg. 7c	CJA—A—88	
<i>Metal Working</i>					
Lomack Motors, Inc.	Portland	7/49	5-25c	IAM—I—75	10% add. night shift
Moore Dry Kiln	No. Portland	6/2	2c	IAM—I—300	2 add. pd. hols. Total 8
<b>WASHINGTON</b>					
Everett Auto Dealers' Assn.	Everett	7/7	*\$16 week	IAM—I 80 parts men	*Retro. 3/1/49
Continental Can Co., Inc.	Walla Walla	7/1	None	IAM—I—25	Add. 1c hr. on 4/2/50 if BLS CPI shows 1.5 increase over 1949
Machinery Companies	Spokane	7/14	None	IAM—I—100	6 paid holidays
Permanente Metals Corp. (Aluminum)	Spokane, Meade, Trentwood &	6/1	Avg. 5c #	USA—C—5,000	# For inequity adj.; add. 1c hr. for ins. pro. (for- merly pd. by employees)
<i>Wholesale Trade</i>					
Washington Petroleum Distributors, Inc.	Yakima	7/20	2½c	TCWH—A—28	6 paid holidays
Seattle Milk Dealers Assn.	Seattle	7/8	10c	TCWH—A—40	Imp. vac. and hols.
<b>UTAH</b>					
<i>Wholesale Trade</i>					
4 Warehouse Cos.	Salt Lake	6/28	*5c	TCWH—A Drivers	*Retro. 6/15/49
<i>Transportation</i>					
Cantlay-Tanzola, Inc.					
Owen Collett Tank Lines	Salt Lake	7/7	*12c	IAM—I 30 mechanics	*Retro. 6/1/49 Add. 5c eff. 7/1/49
Salt Lake Transit Co.	Salt Lake	6/29	4% Comm.	Salt Lake Trans. Empl. Welfare Society—275 taxi and sight- seeing drivers	
Long-line Fr't Operators	Salt Lake	7/21	*15c	IAM—I—85	*Retro. 6/1/49
4 Warehouse Companies	Salt Lake	6/28	*5c	TCWH—A—67	*Retro. 6/7/49
Ogden Transit Co.	Ogden	6/11	5c	SERMCE—A—54	*Retro. 6/1/49

# These Coal Miners Are Doing Better Than John L's Men

***They don't want to join the United Mine Workers of America, but they do want the union to stop trying to make them.***

**A**WAY up in the hills of Utah are 27 men—all coal miners—who are so well treated by the employing company that they have petitioned the Industrial Commission of Utah "to use your influence with the United Mine Workers of America, and ask them to discontinue their efforts to organize us . . ." Then they give the reasons for their petition. These are here digested:

## **Four Good Reasons**

1. Pay. The union scale is \$14.05 for "minimum underground rate, maximum underground scale is \$17.21." Their rates are given as \$14.40 and \$19.20 "for an eight-hour day portal to portal." They say the work is the same for the same number of hours.

2. Underground conditions as good or better than any in the state.

3. "We employees of the American Fuel Company mine have always had employment six days per week, compared with the union mines two to five day work week." The take-home pay is thus much greater, they state.

4. The mine is 22 miles from the nearest railroad and all coal must be moved by truck to the market area or to the railhead. "This," their petition states, "results in a much lower net realization to the owner than is enjoyed by owners of unionized properties."

Also the petition states, "We as a group desire to make it known that we have been fairly dealt with by the American Fuel Company, and are satisfied with our wage scale, and our working conditions."

"In view of the facts above we petition your body to take whatever steps possible to assure us the right, as citi-



**\* This coal miner, who is known as a "shot firer," is shown wiring a "kick," or "blast." After the explosion, loaders pick up the coal and load it into cars.**

zens of the State of Utah and the United States of America to be able to work in peace and harmony at the American Fuel Company mine, without being intimidated or coerced by the organizers of the United Mine Workers."

The quotations above are taken from an advertisement published October 17, 1949 in The Salt Lake Tribune, signed by the American Fuel Company, Malcolm N. McKinnon, Mgr., Deer Creek Canyon, Utah, which also states the 27 signatures typed in the advertisement represent the entire crew, exclusive of management.

Up in Deer Creek Canyon, where these men live and work, in talking amongst themselves they doubtless expressed the belief that the State of Utah and the United States of America, could and would protect them in what they believed to be their inherent rights. But, down here on the West Coast, their spirited plea seems likely to be of no avail.

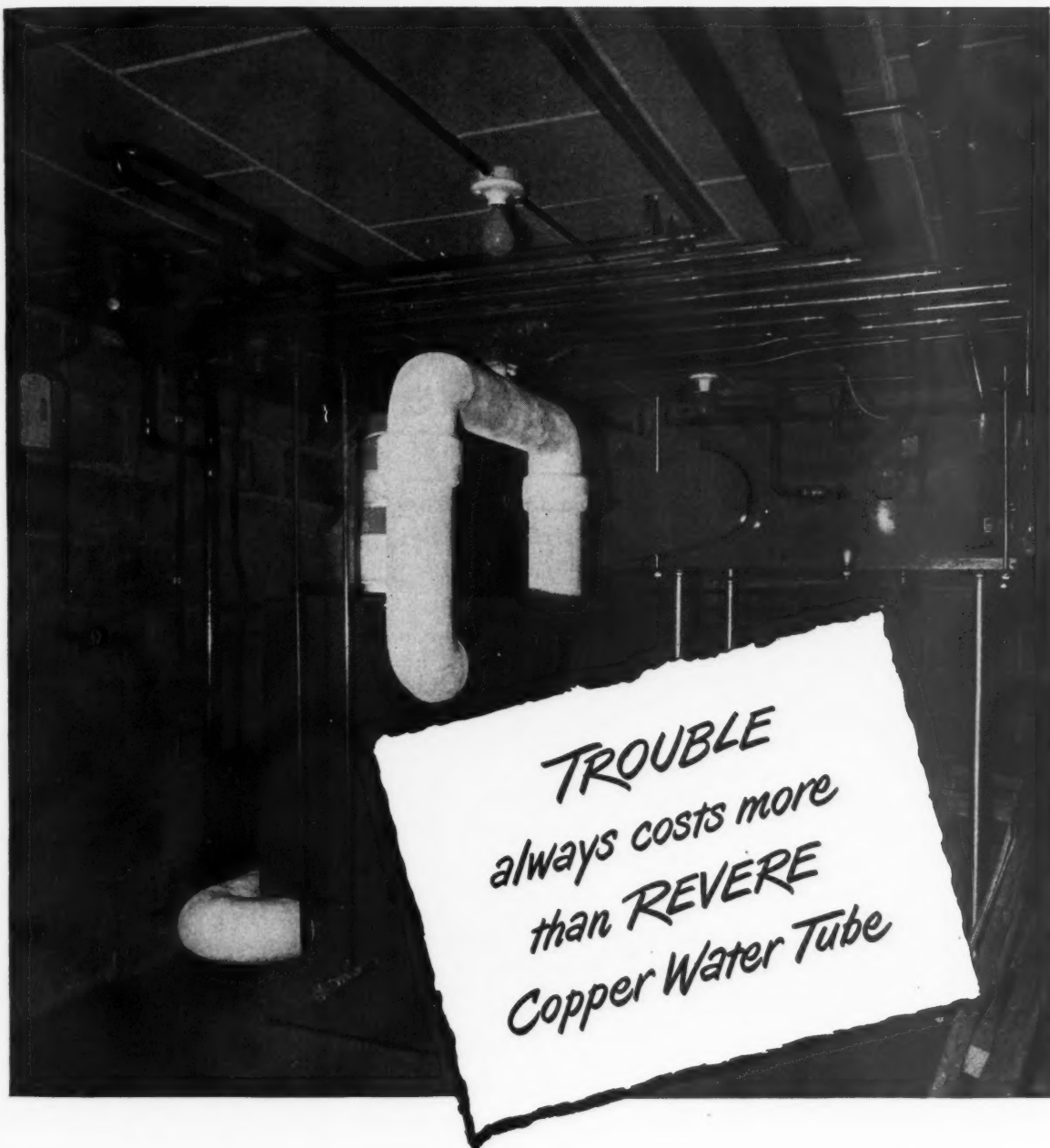
## **Constitutional Right**

They are using their constitutional right to appeal to the state for protection; they want to be relieved from the possibility of "being intimidated or coerced by the organizers of the United Mine Workers."

From the names on the petition one would judge this group is American. The first three are Teagarden, Wadsworth and Johnson; the last three Heaton, Potter, and Grange. The others are similar. But these men are all a little old-fashioned, probably still believing what their fathers' had taught them about freedom, the right to work, and so on.

In the coal mining industry those rights passed into the sole hands of John L. Lewis a long time ago, due to political obligations, diligent organizers, and tough goons. In spite of whatever the American people want to do about *him* he is still running the mines of the country. We can only sympathize with these present day radicals—mountain folk in the hills, of Utah—and warn that they keep looking for trouble and somehow or other be prepared to handle it when it comes . . . as it has come to many independent miners elsewhere in the United States.





On every job—whether it calls for hard temper or soft temper tube, or both—you can rely on Revere Copper Water Tube for long years of service and for installation economy.

Revere hard temper tube is furnished in straight lengths of 12 feet and 20 feet. Revere soft temper tube is available in straight lengths or coils. It is readily bent either by hand or by machine.

All Revere Copper Water Tube is stamped at regular intervals with the

Revere name and the type. These marks are more than identification—they are your assurance of full wall thickness and the close dimensional tolerances so essential for tight soldered joints.

It will also pay you to install such other long-lived Revere materials as Red-Brass Pipe; Sheet Copper and Herculoy for tanks, ducts, pans and trays; Dryseal Copper Refrigeration Tube (dehydrated and sealed); Copper oil burner, heat control and capillary tubes.

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## REGIONAL REVIEWS

### Tehachapi to Tijuana

# Industrial Climate Favorable For Western Steel Users

**New blast furnace at Fontana doubles West Coast's potential pig iron capacity at height of strike troubles. Rate decision helps**

**L**OS ANGELES—Economic weather men are confidently hanging out the following prediction: "Southern California and other West Coast points, fair and warmer for all steel-using industries."

Such an announcement, coming on the heels of prolonged steel and coal strikes, might well be attributed to the usual buoyancy of California weather men—but recent events have dramatically revealed an unmistakable improvement in this area's industrial climate.

Westerners, long accustomed to dependence on a 2000-mile supply line stretching back to eastern steel mills, are finding it hard to realize that this area actually has been able to withstand the impact of the crippling shutdowns at the eastern mines and mills in better shape than Detroit, Cleveland, and other centrally located areas.

#### West in Good Shape

True, local warehouses happened to be unusually well stocked and so did a good many fabricators, while speedy ending of Kaiser's negotiations with CIO helped keep Western ingot production running at double the percentage of capacity prevailing in the East.

Further helping the situation were near-capacity operations by Pacific States Steel at Niles, Judson at Emeryville, Oregon Steel Mills at Portland, and Northwest Steel at Seattle. But even while eastern strikes were at their height, Henry Kaiser's new \$17,000,000 blast furnace at Fontana was blown in, virtually doubling the West Coast's potential pig iron capacity.

"Bess No. 2" will feed upon coal from Kaiser's Utah mines and iron ores from his new Eagle Mountain deposits. Already tests have proved these ores produce less slag than most, permitting a 20 per cent reduction in length of the slag pits.

#### 50% Coking Capacity Boost

Forty-five new ovens will boost coking capacity 50 per cent, to more than half a million tons per year, with greater production also of creosote oil, sulphate of Ammonia, phenol, xylol, and other basic chemical byproducts.

(Among other byproducts to be harvested at Fontana this fall will be nearly 200 acres of barley from a plot adjoining the open hearth furnaces' scrap pile; 76 acres of grapes and 96 acres of walnuts, plus quantities of hay, corn, squash, potatoes, beans, lettuce, beets, yams, tomatoes and melons, planted under the Kaiser policy that every one of the plant's 1300 acres must "grow" steel, green lawn, or crops.)

Major strikes, in conjunction with record-breaking auto production and reviving demand for home appliances, appear to have nipped an incipient price war in the steel trade. But the promise of better economic weather for steel users is clinched by the Interstate Commerce Commission's order which makes permanent the \$5.60 per ton temporary reduction in freight rates on West-bound Geneva steel.

This signal victory for the Western States Council in its long fight to end "phantom freight" markups puts the West's steel industry solidly on its own

feet. Most observers feel that with such obvious indication of lusty growth, this new giant of the West need not worry about holding its own in the future.

To most local manufacturers the ICC means a tremendous advantage in expanding their markets against eastern competition. To the area at large, it nails down another job-building factor for the future. And certainly something'll have to be done, local experts warn, if southern California industry is to keep on expanding fast enough to provide jobs for all the people who flock here.

Employment held up very well during last spring's business slowdown and in September it stood only 2 per cent below the 1948 mark. But during the same 12-month, unemployment rose 50 per cent, virtually all of it due to the influx of newcomers.

#### New All-Time Record

The California Club reports that the largest number of California-bound vehicles in history crossed this area's frontiers this summer. Obviously a good share of their occupants were thinking in terms of jobs rather than sight-seeing, movie studios, or surf bathing.

Security-First National Bank points out that historically this area usually has a high relative level of unemployment compared with the U. S. average, thanks to heavy migration and the resultant constant flux in the labor force.

In September the Bank's economists figure, about 10 per cent of the labor

*(Continued on page 60)*

*Another* example of Johns-Manville insulation leadership  
Application Service



*Bright future... for this insulation investment*

Each day many men in industry ask themselves this question—*just how should I go about getting the most out of each insulation dollar?* The answer, as with any investment, depends on several factors.

First, there's the reputation of the insulation manufacturer; the type of materials he has to offer; the efficiency of those materials in saving fuel. Next, there is the kind of service the manufacturer offers for engineering and applying his insulations.

This last consideration is a mighty important one. For, assuming all other things to be equal, it is the selection of the right insulation and the correct application of it that pays off in the long run on your insulation investment.

... And that's where Johns-Manville leadership in application service can be of utmost help to you. Your Johns-Manville Insulation Applicator selects the right materials for your specific job from the wide variety of J-M insulations that

are available (for temperatures from minus 400F to 3000F above zero).

You will benefit by the long experience of your J-M Insulation Contract firm in all phases of insulation application . . . from engineering the job to the skill of his mechanics in applying the insulations.

If you have an insulation problem, write to the blue chip name for insulation investments—Johns-Manville, Box 290, New York 16, New York.



**Johns-Manville** *first in* **INSULATIONS**

## LOS ANGELES REGIONAL REVIEW

(Continued from page 58)

force was unemployed, compared with 6.8 per cent a year ago. In 1940, however, the unemployment ratio was 13.5 per cent. Late this fall, moreover, there has been a further seasonal decline in unemployment.

One of the most appealing solutions to the job-building problem was emphasized recently by Dr. Virgil D. Reed, well-known New York marketing research expert, who told Advertising Club members that "the increasing productive capacity of the West Coast, the variety and nature of its products and the resulting need for a free interchange of balanced trade, impel more and more Californians to look eastward and overseas for new customers.

### West Eyes the East

"In spite of your long psychological indoctrination to the contrary," Dr. Reed continued, "it is the same distance from Los Angeles to New York as it is from New York to Los Angeles. Like the Australians, you have been too long accustomed to supplying goods for which the buyer aggressively seeks the seller. It is time to begin turning the tide eastward with aggressive market strategy."

Many individual plants, of course, long ago took steps to push their sales programs eastward into the home territory of their major competitors. At a meeting of the American Ceramic Society at Los Angeles, for instance, it was revealed that local manufacturers not only are turning out products equal to the finest dinnerware made in the entire world, but are finding their biggest market in the east, in competition with the old established manufacturers.

Plenty of other observers reason from another point of view, holding that now, with the balance of population shifted Westward, this area is growing fast enough to warrant far more intensive cultivation — "before easterners come in and take the market away from us."

### Evidence Piles Up

Evidence along this line keeps piling up. Leading chemical experts recently are reported to believe that in many chemical process industries, present conditions of competition, supply, and freight rates now make it imperative for national marketers to begin production in the West, instead of attempting to supply this territory from eastern plants.

Ross D. Siragusa, Admiral Corporation president, told newsmen upon his

visit here that his firm now is marketing 18 per cent of its television sets in the 11 Western states and is considering opening a Los Angeles factory.

### General Mills Pioneers

General Mills, faced with rising grain and labor costs, has departed from traditional milling methods in building a new plant of advanced design at Los Angeles. Its materials flow is regulated by elaborate interlocking remote control systems and dust explosion hazards are virtually eliminated by inert gas control instrumentation.

Company executives declared the new production point was established on the basis of strategic location from a rail traffic and rate standpoint to both the sources of raw materials and potential markets for the finished products."

And Gwilym Price, Westinghouse president, reported that his concern's Pacific Coast business, excluding consumer items, now is running 300 per cent above the level of eight years ago, confirming company experts' forecasts of Western sales potentials.

### Westinghouse to Expand

"There were two sections of the country that we expected to grow outstandingly after the war and they lived up to expectations," Price declared. "One section was the area served from our St. Louis office, and the other was the Pacific Coast."

Mindful of market potentials not only of the West but also of foreign areas served out of Western ports, Westinghouse has acquired a 57-acre manufacturing plant at Sunnyvale in the S. F. Bay area, where products destined for these territories will be made, Price said.

### Exports Down

Unfortunately for southern California's biggest manufacturing industry, the export market has sharply narrowed. Devaluation of the British pound put quite a crimp in local aircraft makers' efforts to drum up more overseas business, although industry men haven't stopped trying.

U. S. prices, of course, now look much higher in terms of those currencies hitched to the British pound. South Americans, having depleted their wartime hoards of U. S. dollars, long since began to go light on purchases of American aircraft, and it has been hard even to sell them spare parts.

Brazil seems to have too many competing airlines already. Australia and other empire countries, of course, suffer from the same dollar shortage as the mother country and recently switched

purchases from U.S. to Canadian transport planes to save dollars. Sweden has placed sizeable orders with British military aircraft makers, having large sterling balances and few U.S. dollars.

As one local industry man put it, "If we wanted to go into the banking business, we could sell lots of planes . . . in India, Asia, Australia, the Orient . . . but everywhere, it's the dollar shortage that's blocking the way."

But the aircraft builders don't give up easily. Lockheed, for instance, has accepted trade-in of a number of slightly used Constellations from KLM Airlines, taking them in on a purchase by the Dutch firm of five new "Connies" with longer range features. The trade-ins already have been resold to Capital Airlines under a lease-purchase arrangement, first such deal between an airline and an aircraft manufacturer.

### Look Out for John Bull

Industrialists meanwhile are keeping an eye upon rising competition from England, where much research in jet propulsion has put that nation in first rank. If technical progress there can match U.S. inventive skill, the price differential may greatly sharpen competition in the military plane field.

Another factor that promises interesting developments in the world aircraft market is the joint Canadian-American standardization program, aimed at bypassing certain problems that gave the Allies no end of trouble during the last war.

At Montreal, for example, Canadair, Ltd., is setting up production lines for large orders for Sabre (F-86) fighters. Preparations are being made there also to build Northrop's tri-motored Raiders (C-125), designed for arctic rescues and for flights into short rough fields with heavy machinery, tanks, and equipment.

### Devaluation Casualty

Devaluation of the British pound also has caused its first casualties among Arizona industries. Soon after world metal markets adjusted themselves to the new currency relationships, a dozen small lead-zinc mines in the Bisbee area closed down, along with the custom mill that processed their ores, for foreign countries now could ship those metals into the United States to be sold actually below cost of production here.

About the same time, Arizonans suffered another blow when heavy, premature frosts struck the cotton fields of Cochise County, causing losses ranging from 10 to 40 per cent of the crop. Withered on the vines also were many



tons of chili peppers, nearly ready for picking.

In other portions of southern Arizona, farmers are taking steps to enlist several thousand Navajo Indians to help meet the labor shortage which threatened to leave a large percentage of their 460,000-bale crop unharvested. Though the Indians pick more slowly than white workers, they pick much cleaner, growers say, and they can be brought to the fields for only \$10 or so per head, as compared with \$25 apiece for Mexicans from south of the border. Heretofore the Navajos had been ignored by cotton farmers, although about 3500 Indian workers are hired each summer by Utah and Colorado beet growers.

#### C of C Alliance

An alliance of Arizona chambers of commerce already has put into practice some of the ideas developed at their recent "industry clinic." In cooperation with the U. S. Forest Service, they have imported Dr. Elmer Harris, technical expert of the Forest Service's Madison, Wisconsin, forest products laboratory, to survey the industrial potentials of the Flagstaff area's forests of aspen and ponderosa pine.

Despite the vast amount of lumber milled in the area, commercial products so far have been limited to building lumber, box shoo, telephone poles, mine timbers, and aspen excelsior. Chamber members hope that out of the mountainous piles of waste wood now burned to get rid of it, may be developed byproducts that will create new local industries. More than 40 per cent of the Flagstaff area's employment now depends upon logging and lumbering.

#### Arizona Business Research

University of Arizona, Tucson, has established a bureau of business research, headed by Lauren W. Casaday, former economic analyst in the U. S. Treasury Department. He is assisted by John P. Shirer, government analyst and research statistician, and brother of William L. Shirer, news commentator.

#### Advanced Management

To meet the need for executive training of industrial relations representatives of management, a group of business men and educators have established The Institute of Advanced Management in Chicago. The institute offers a course in personnel administration that can be completed by home study. Dean of the institute is Dr. Kenneth Field, former head of the department of economics of Carnegie Institute of Technology.

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## REGIONAL REVIEWS

### Sierras to the Sea

# Chemical Development in the West Reviewed at Pacific Conference

**Many scientific developments pioneered here; California gas companies face problems to meet this winter's peak demand**

**S**AN FRANCISCO — For getting together a thorough statistical picture of its growth, the chemical industry on the Pacific Coast, has done an outstanding job in its two conferences held in San Francisco in October 1947 and 1949. The various committees for the Pacific Chemical Conference present a remarkable summary of the volume of various chemicals used by industries in the area, and this year an excellent bird's eye view of the scientific developments pioneered in the West was presented by Leland I. Doan, president of Dow Chemical Company.

#### Western Development

"Among the industries pioneered on the Coast because of raw material sources," he said, "are the manufacture of salt and magnesium compounds from sea water, the recovery of soda ash, other alkalis and salt cake from natural brines, the first discovery and subsequent recovery of borax and potash minerals in the United States, and finally the recovery of iodine from oil well brines."

"Industries for which the ground was laid by Western research comprised chemical and agricultural chemical developments. Among chemical developments can be counted the Cottrell electrostatic precipitator; the discovery of xanthate flotation and manufacture of xanthate reagents; the bleaching of Western hemlock groundwood pulp to make it suitable for newsprint; the manufacture of petroleum chemicals; and the chlorination of hydrocarbons for manufacture of solvents and refrigerants."

"There have been noteworthy agricultural chemical developments also.

The fumigation of citrus trees by means of hydrocyanic acid, the development of oil sprays as insecticides and of lime-sulfur as a fungicide, the use of methyl bromide as space fumigant and of dichloropropenes and ethylene dibromide as soil fumigants, and finally the use of anhydrous and aqueous ammonia applied directly to irrigation water and soils as fertilizer. Every one of these industries has reached national and international importance far beyond the borders of the Western United States."

Due apparently to the fact that the exposition in connection with the conference was too close to the New York show to permit exhibits to be shipped East by freight, the number of exhibitors was smaller this year than two years ago.

#### Now About Gas . . .

Although the gas companies in California have turned to the Texas and New Mexico fields for additional supplies, in order to keep up with the demand created by the increase in population, they still face many problems in meeting the winter peak demand, according to James S. Moulton, vice-president and executive engineer of the Pacific Gas and Electric Company.

He reported at the recent annual meeting of the Pacific Gas Association that estimates indicate firm sales in the state will increase from 248 billion cubic feet in 1948 to 296 billion in 1952, while interruptible industrial sales amounting to 152 billion in 1948 are estimated at around 243 billion in 1952. Requirements of California utilities in 1952 may total around 640 billion cubic feet.

Northern California's present supply is about 72 per cent dry gas, from wells which produce gas only, and 28 per cent oil well gas, which is produced along with oil from oil wells and is generally processed from the recovery of hydrocarbons (natural gasoline). The dry gas comes mostly from the Rio Vista field, which has declined from a daily peak of 720 million cubic feet in 1945 to about 510 million last winter. Mr. Moulton estimates the volume will be down below 400 billion by January 1952 unless additional wells are drilled. P.G. & E. is now spending over \$250,000 for additional gathering lines in the Rio Vista field as one means of holding up deliverability.

#### Difficulties Encountered

Much of the out-of-state gas is oil well gas, which becomes available as oil is produced and cannot be turned on or shut off to meet variations in gas demands. Also, long distance transmission lines require high annual load factor operation to achieve low unit costs, and the several contracts of the northern and southern California utilities require gas to be purchased at a 91 per cent annual load factor. Consequently dry gas is the source from which peak demand must be met.

Methods of meeting the situation include curtailing or shutting off industrial customers and steam-electric generating plants, and obtaining gas normally used by producers for recycling or pressure maintenance or other of their own uses. Three of the plans most frequently suggested for maintaining the peak deliverability of the dry gas fields are:

1. That the special conditions in the rate tariffs of the natural gas utilities

supplying southern California which provide that dry gas need not be supplied to interruptible customers be extended to northern California.

2. That volumetric controls be established fixing maximum limits on total deliveries to interruptible customers who could feasibly use other fuels.

3. That the prices at which interruptible gas is sold be raised to a level higher than the equivalent price of oil.

#### **Demands Could Change**

Peak demands for space heating could be reduced by changing the form of the present rate tariffs, according to Mr. Moulton. The tariffs were set up when supply was ample and space heating had not grown to its present proportions. He predicts that higher rates on space heating probably will become necessary.

Conversely, there is the problem of disposing of the supply during the summer, particularly on warm summer week-ends. Methods of doing this include injection into underground storage reservoirs, use for fuel in steam-electric generating plants, and the development of summer loads such as air conditioning.

#### **No Smog Here**

Air pollution is the least of the San Francisco bay area's troubles, but the San Francisco Bay Area Council was commissioned last spring by the supervisors of the bay area counties to study the subject. After conferences with Stanford Research Institute, Air Research Associates and many engineers and industrial advisors, the Council made two general recommendations:

(1) The establishment of a Bay Area Air Pollution Group or Waste Disposal Group comprised of authorities in sanitary and industrial engineering from industry, government and private or public technical agencies to serve as a clearing-house of technical information and to give assistance and counsel in analyzing and recommending planning and action programs, including water pollution and sewage and waste disposal;

(2) Establishment of voluntary community programs in which operators of industry, commercial buildings and multiple dwellings as well as the general public cooperate with local governments to reduce any existing or potential "smog" nuisance or air pollution which is controllable.

#### **E.M.E.A. Meeting**

Electrical Maintenance Engineers of Northern California will meet on December 15, at 8 p.m. at the Pacific Gas and Electric Co.'s building at 18th and Shotwell Streets, San Francisco. An industrial speaker is scheduled.

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## REGIONAL REVIEWS

### The Columbia Empire

# Expected Slow-Down in Forest Industries Fades Away

**60-day average backlog of orders, plus continuing freight car shortage, makes sales firm. Heavy construction at full speed**

**P**ORTLAND—The nation's slow-down because of strikes apparently was overlooked in the Pacific Northwest. Aside from normal layoffs in food processing and harvesting there was little to indicate that a fall crisis was on the loose in the nation.

The expected slowdown in the Pacific Northwest's largest source of cash income, the forest industries, didn't materialize.

#### Bullish Talk

Some pine mills in the mountainous regions had to lay off men in the course of regular winter shutdowns. The first winter rain in the fir regions west of the Cascades were about through for the winter.

However, some of the larger mills in the fir region reported 90-day order files at the beginning of November and the industry average was a 30-day backlog of orders.

To add to bullish talk in this major industry, has been the continuing freight car shortage which, despite more choosiness on the part of buyers, has been a cause for premiums on quick delivery.

#### Lumber Prices

Lumber prices during October, like employment, held mostly steady despite quite a few pessimistic forecasts that appeared the previous month. October was a month in which the car shortage and "hot pineapple" labor strife topped the slight employment increase by far as important industrial news.

On the labor front, striking employees of poultry processing plants, wholesale

grocery firms and furniture workers all have returned to work.

#### Heavy Construction

Heavy construction is continuing at full speed despite the steel strike. Contractors at McNary and Detroit dams had a 60-day supply of steel stock at the site or in fabricator's hands at the beginning of the steel tieup.

Enough steel to handle other major construction work was still in fair supply as the strike entered its second month.

Earlier in October, the majority of steel suppliers and fabricators agreed that if the strike was prolonged "the impact would be felt strongly." Some firms immediately started pulling in their horns and refused bids on anything requiring large amounts of steel.

#### Possible Power Shortage

Among other Northwest shortages is, of course, the looming power shortage.

The Bonneville Power Administration has predicted an earlier curtailment of power loads than occurred last year in the Pacific Northwest. Already some power allotted to the big aluminum industry has been cut.

Greater power curtailment for all Northwest utilities is threatened unless general rains develop soon. The only bright spot appears to be an increase peaking capacity for the Northwest pool due to recently installed generation equipment.

Present Columbia River flows are near the record low of 1936-37 for this

time of year and the Bonneville administration says this may force earlier curtailment of power.

Northwest power requirements are expected to increase by some 130,000 kilowatts this year, and energy loads of the Northwest power pool serving Oregon, Washington and northern Idaho probably will reach 2½ million kilowatts as compared with 2,370,000 kilowatts from November through March last year.

#### Peak KW Loads

Peak loads are expected to increase by about 300,000 kilowatts over last year to about 3½ million kilowatts.

Meanwhile, continued progress is being made in building transmission lines to help alleviate the power shortage.

Industrial expansion continues in the area. Among newer developments is the announcement of the opening by the end of the year of the Carburundum Company's Vancouver, Wash., silicon carbide works.

The firm, which manufactures grinding wheels, sharpening stones and similar products, is the only one of its type west of the Mississippi.

#### K-F Assembly Plant

The Vancouver plant has contracted for 10,000 kilowatts of Bonneville power.

Word is expected soon on awarding of contracts for construction of the Kaiser-Frazer automobile assembly plant in Portland.

Good news for the fishing industry comes with word that McNary Dam,



\$226,000,000 power and navigation project in the mid-Columbia, will have the most complete fishways of any dam in America.

Between \$14,000,000 and \$15,000,000 will be spent on fish ladders on the Oregon and Washington sides, on an advance type fish elevator and on the fish collection system along the face of the power house.

#### Healthy Fish Industry

This system, together with the \$7,000,000 fishways at Bonneville Dam, will be much easier for fish runs to negotiate than the rapids at Celilo Falls, and should help preserve the salmon industry, which is producing about \$24,000,000 a year.

Another encouraging report comes from the travel information department of the Oregon State Highway Commission. The state's 1949 tourist business brought estimated revenues of \$110,000,000, an increase of 19 per cent over 1948.

#### Flour Millers Buck

Strong protests have been aimed at Washington, D. C., by Pacific Northwest flour millers. They want a higher government loan rate on southern Idaho and Utah wheat to bring its price up to that grown in Washington and Oregon.

They point out that, with rail rates to their California markets the same, the lower Idaho and Utah wheat price has lost the Pacific Northwest most of its traditional California milling market.

#### More Seeding

As part of Crown-Zellerbach Corporation's program to attain true sustained yield for its eight Pacific Northwest tree farms of slightly more than 500,000 acres, helicopters have been broadcasting seeds and seed pellets over 5200 acres of logged-off or burnt-over lands, to be followed by hand-planting of seedlings.

#### Body Beautiful

Ernest Ornellas, Jr., 16 years old, of San Lorenzo, California, is a national winner in the junior division of the special Fisher Body Craftsman's Guild competition for the sons of Fisher Body employees. He received a cash award of \$150 as winner of second place in the special competition. His father, a welder in the production department, has been a Fisher Body plant employee since 1929.



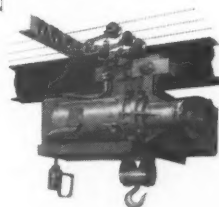
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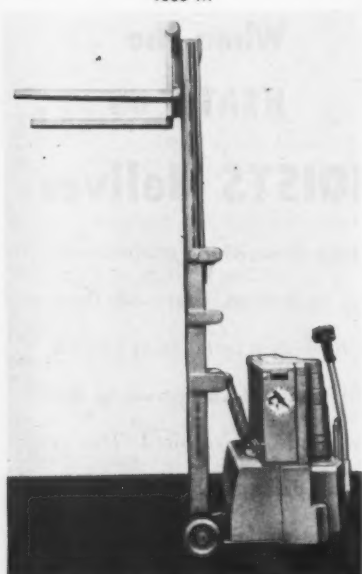
## NEW MATERIALS & EQUIPMENT

1059-M

### Gear Finisher Completely Automatic

Just announced is a completely automatic finisher for heavy duty gears. Machine will handle spur or helical gears and involute splines from zero to 18 or 24 in. diameter, up to 15 in. face width. Once machine is set up, loading gear between centers and pushing "start" button completes entire operation. *Michigan Tool Company, Detroit, Mich.*

1060-M



### Compact Jackstacker

*Lewis-Shepard Products, Inc., Watertown, Mass.*, are now manufacturing a compact counterbalanced fork lift truck, called "Jackstacker," designed for loads up to 1,000 lbs. It is 48" long, has fork elevations up to 130", is ideal for use in confined areas. All controls are in head handle. Electrically driven.

1061-M

### \*High Current Dual Rectifier Elements

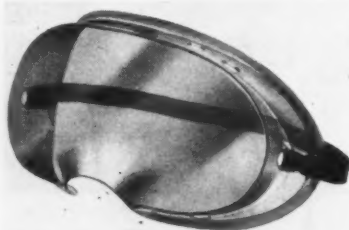
The largest known dual selenium rectifier elements measuring  $7\frac{1}{4} \times 12\frac{3}{4}$ " have been developed by *International Rectifier Corp., Los Angeles*. Operating efficiencies of 85 per cent can be obtained, and when aluminum plates are used, the weight per dual element minus the hardware is nine ounces. Each 1,500 ampere stack is  $7\frac{1}{4}$ " wide by 12" long by  $14\frac{1}{2}$ " high.

**\*Items evaluated by Western Industry's technical advisers on basis of information supplied by producer.**

1062-M

### The Better to See With

A new safety goggle weighing less than one ounce is announced by *Chicago Eye Shield Co.* It is non-inflammable, ventilated, has an adjustable headband, and provides a wide range of vision. Available in clear, light green or dark transparent frames. Your own glasses can still be worn under these goggles.



1063-M

### Semi-Automatic Tube Bending Machine

The new semi-automatic machine being manufactured by *Pines Engineering Co., Aurora, Ill.*, is especially recommended for shops whose bending operations are varied and limited, such as maintenance, sample and job shop work. Machine is planned to handle tubes and pipes up to 5 ft. in length, but can be extended to take any length of tube, and allows for quick change-overs in the bending tools by removing only two cap screws.

1064-M



### Truck Man

Truck Man is a gasoline-powered inter-plant truck, produced by Truck-Man division of *Knickerbocker Co., Jackson, Mich.* This unit is operator-riden, powered by a 4.4 h.p. Wisconsin ABN air-cooled engine, runs on pneumatic tires, will turn 360°, and is rated up to 3,500 pounds. Comes in three models as shown. Pallet Toter and Skid Lift models have hydraulic lift mechanisms.

1065-M

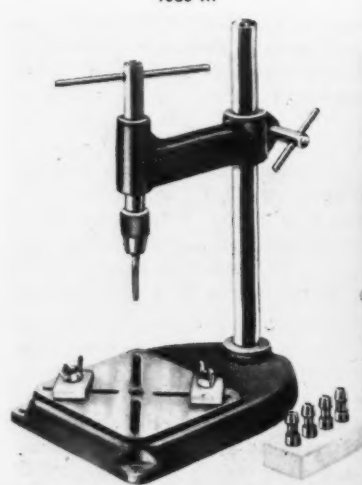
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1066-M



### Hand Tapper

Hand Tapper Model H.T. 250, announced by *H. D. Herder Co., Kalamazoo, Mich.*, is a bench type unit designed for sensitive precision tapping. Collets supplied with machine handle shank sizes from #0 through  $\frac{1}{2}$ ". Maximum distance from base of machine to bottom of tap is six inches. Uses both right and left hand taps. Adjustable spindle arm is quickly positioned for height.

1067-M

### Automatic Rapid-Fire Screwstick Driver

A new Thor rotary pneumatic tool designed to drive "screwsticks" sized from No. 0 to No. 4, is available from *Independent Pneumatic Tool Co., Aurora, Ill.* A throttle lever and flexible air hose accompany this tool, which is said to drive small sizes of screws from seven to eight times as fast as conventional methods.

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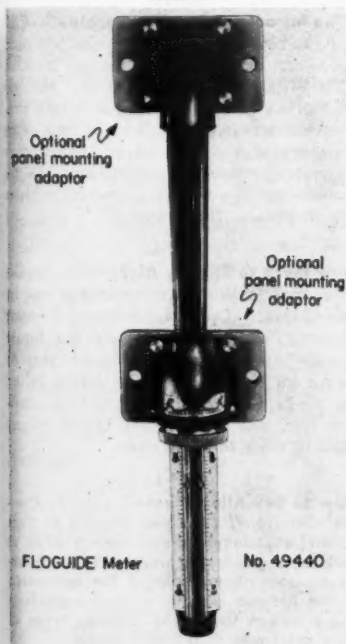


1068-M

### Souped-up Alnico Magnets

Now they are lining up the crystal structure of Alnico magnets to parallel the direction of magnetization. Hence, manufacturers who use permanent magnets (such as for radio loudspeakers and other communications equipment) can now use smaller magnets to do the same job that large ones formerly did. Alnico 5 DG (that stands for Directional Grain), put out by G.E., is the name of this new type magnetic material. G.E. is also producing another permanent magnetic material known as Alnico 7. This is used where a high demagnetization force is present such as in motors, generators, and variable gap air devices. This new magnet shows a higher coercive force than any other grade of Alnico.

1069-M



### Gas Flowmeter

"Floguide" is a new variable-area gas flowmeter produced by Fischer & Porter Co., Hatboro, Penn. It is designed to provide an inexpensive, highly accurate means for measurement of gas flow rates, with stainless steel metering elements, and only one moving part. Available in capacities from 45 to 16,000 std. cu. ft. CO<sub>2</sub>, 200 to 76,000 SCFH H<sub>2</sub>, and comparable capacities with other gases. Can be furnished to withstand 600 p.s.i.g. working pressures in all sizes.

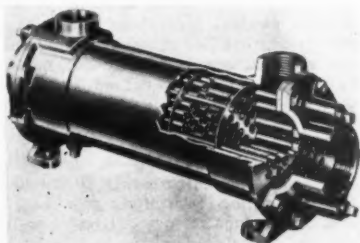
**\*Items evaluated by Western Industry's technical advisers on basis of information supplied by producer.**

December, 1949—WESTERN INDUSTRY

1070-M

### Heat Exchanger

Here is an all-stainless steel heat exchanger, the first to reach mass production, according to the manufacturers, *Ross Heater & Mfg. Co., Buffalo, N. Y.* This new model, type SSCF, avoids contamination of fluids or corrosion by fluids, it incorporates all recent advancements in Ross thermal engineering, and it comes in complete range of sizes tested to 450 p.s.i.

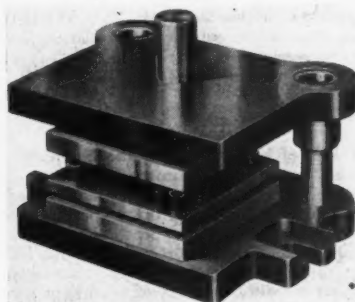


1071-M

### \*New Fluorescent Lamp Born

*Duro-Test Corp., North Bergen, N. J.*, who make this lamp, say that it's completely new. Features include a double cathode, a new type of phosphor powder which is beryllium free as well as capable of greater lumen output on the same wattage without premature discoloration, more positive starting and less chance of failure. Life rating of this "Duro-Test DXC" lamp is 10,000 hours. It operates on any standard fluorescent fixture, and is supplied in all standard colors.

1072-M



### Die Set Package

This die set package, offered by *Paragon Metal Products, Los Angeles*, is designed to eliminate all preliminary sawing, grinding, squaring, drilling, reaming and tapping from the making of dies. It includes a die block, stripper plate, punch pad, dowel pins, and mounting blocks, all steel, all precision-ground on all sides, with all necessary drilled, reamed and tapped mounting holes.

1073-M

### \*New Chrome Plating Solution

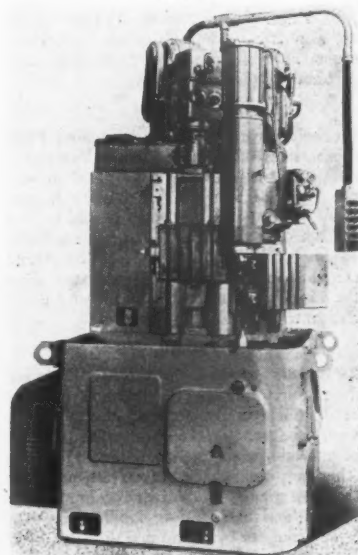
Here's a new self-regulating high-speed chromium plating solution which *United Chromium, Inc., New York*, says will deposit more chromium on an object than the same amount of electric power in the conventional solution. Plating time can be cut down by from one-fifth to one-half, and appreciable power savings made. This product is known as "Unichrome SRHS."

1074-M

### New Device Speeds Punch Press Work

A new tool has been invented for quickly pulling out die "buttons" (either straight or taper hole) without having to remove dies or die sections from press, thus cutting down punch press down-time. Two standard sets are available, to pull inserts from 0.2031" through 0.7031". The tool can also be used for quick removal of bearings, bushings, liners, and sleeves. *L. C. Ball Associates, Inc., Detroit, Mich.*

1075-M



### Vertical Lathe

A vertical automatic production lathe designed for turning, boring, and facing work has been developed by *Reed-Prentice Corp., Dept. V-33, Worcester, Mass.*, to take full advantage of high speed negative-rake cutting tools. This machine is controlled by a central cycle timer. After work is chucked, the timer starts the spindle, starts each slide to move at its appointed time, and when the last tool has completed its work, it stops the spindle. This versatile automatic unit is 70" long, 65½" wide, and 113" high.

# HELPFUL LITERATURE

for the plant operator who wants to keep informed

2646-L

**Booklet on Large Induction Motors**—“The ABC of Large Induction Motors” covers in 32 pages the basic theory, operation, characteristics, applications and control of large induction motors, both squirrel-cage and wound rotor types. *Electric Machinery Mfg. Co., Minneapolis, Minn.*

2647-L

**Pallet Data**—Each page of “National Pallets” contains a drawing, suggested use and in-operation photograph of a different kind of wooden pallet made by *National Pallet Corp., Pittsburgh, Penna.* Included are four-way pallets, stationary rack ones, standard, skid, collapsible, box and expendable types (equipped with replaceable fiber board cover).

2648-L

**Industrial Chemicals Listed**—Now available is the 1949 edition of the annual catalog describing the industrial chemicals offered by *Tennessee Eastman Corporation, Kingsport, Tenn.* Included in the 75-page catalog are aliphatics, aldehydes, acids, anhydrides, esters, as well as aromatics, cellulose products and inorganic chemicals.

2649-L

**Materials Handling in a Wyoming Plant**—The story of how limestone is handled in a limestone plant in Wyoming, and the various types of conveyors that carry it from mine to crusher to screeners is told in Vol. 16, No. 7 of the *Link-Belt News*, published by *Link-Belt Co., Chicago, Ill.* The journal carries many other interesting stories about the Link-Belt materials handling and power transmitting machinery in action.

2650-L

**“Minerals of the Southwest”** contains their description and information on their production, foreign sources, U. S. sources, uses, producers, markets and prices. The 90-page catalog also lists smelters and smelting schedules, chemical manufacturers, mills and grinding plants, quicksilver buyers, mineral brokers and assay-testing laboratories. The book is put out by the mining division of the *Los Angeles Chamber of Commerce.*

2651-L

**Jalloy Brochure**—Jalloy, a new special alloy steel designed for use in industries where abrasion and impact resistance are major factors in the service life of steel, is described in a 38-page brochure. Photographically-illustrated case histories of this steel's performance in comparison with other types on actual jobs make up a large part of the brochure, which also contains full technical data on its various properties. *Jones & Laughlin Steel Corp., Pittsburgh, Penna.*

2652-L

**Electronic Controls Booklet**—45 case studies describing how photoelectric and electronic controls solve plant problems and prevent bottlenecks are contained in the 65-page booklet put out by *Photoswitch Incorporated, Cambridge, Mass.*

2653-L

**Dust Control Explained**—How to control the dust present during the handling and mixing of dry pigments in paint manufacturing plants is described in an industry report from *American Wheelabrator & Equipment Corp., Mishawaka, Indiana.* Report contains pictorial descriptions of dust control systems installed at two paint manufacturing plants, one in Chicago and one in California, and points out advantages of dust-free plants.

2654-L

**Soldering Gun Catalog**—A descriptive catalog just released covers the Weller Soldering Gun line. Each of the four models described is suitable to a different type of use and the catalog includes specifications, characteristics, tip types and prices for each model. *Weller Manufacturing Company, Easton, Penna.*

2655-L

**Research Projects in American Universities**—To provide a guide to current and recently completed business and economic research projects being carried on in American colleges and universities, the U. S. Dept. of Commerce has just published a comprehensive review, called “Survey of University Business and Economic Research Projects, 1947-48.” Twenty-four subject fields are covered in the projects, and three sections of the publication are devoted to economic studies of individual industries. \$1.

2656-L

**Detergents in Industry**—How Oakite detergent is used in solving the water-softening problem, in washing industrial air filters, in cleaning the equipment in a citrus juice canning plant are described in *Oakite News Service*, published by *Oakite Products, Inc., New York.*

2657-L

**Material Handling—At the Machine**—The “positioning” of materials—that much-neglected phase of materials handling—is thoroughly gone into in this 13-page treatise written by a vice-president of the *Lyon-Raymond Corporation, Greene, N. Y.* This useful 13-page booklet covers comprehensively the different types of equipment used around the plant for “positioning” materials, contains two process flow charts giving step-by-step reports of how two different batches of material were handled.

2658-L

**Teach Them to Lift**—Because thousands of workers every year suffer injuries from the simple process of picking up and putting down, the Bureau of Labor Standards has written a new free booklet, “Teach Them to Lift.” The little booklet, popular in style and amusingly illustrated, describes how workers can be trained in safe lifting, and gives many tricks of the trade. It is the second in a new series of safety pamphlets designed for the industrial foreman or supervisor. *Bureau of Labor Standards, U. S. Dept. of Labor, Washington 25, D. C.*

2659-L

**What to Do About Machine Vibration**—A new 20-page booklet analyzes many typical problems of machine vibration in industry and explains in detail how they were successfully overcome. *Western Felt Works, Chicago, Ill.*

2660-L

**Boiler Scale Prevention**—How boiler scale forms, what its effects are and the chemistry and control of corrective internal treatments are described in a new technical report issued by *W. H. & L. D. Betz, Philadelphia, Penna.*

2661-L

**Air Hygiene**—A comprehensive new report on “air hygiene”—the techniques for reducing airborne bacterial contamination through the use of filters, ventilating equipment and chemical sprays—is now available to the American public. It is the result of a study made by the British Medical Research Council during the war, contains 356 pages, including tables, graphs, and charts and costs \$2.35 per copy. *British Information Services, New York.*

2662-L

**“The Miracle of Calcium Carbide”**—Calcium carbide—its past, present and potential uses—are narrated in a 16-page booklet, “The Miracle of Calcium Carbide,” put out by *National Carbide Corporation, New York.* Booklet traces its history from the time of its discovery as a commercial possibility over 50 years ago through its present use in the manufacture of plastics and synthetic rubbers and its possible future uses.

2663-L

**How Much to Ship by Air?**—Through use of a small sliderule-type device put out by *Air Express Division, Railway Express Agency, Inc., New York*, you can figure quickly how much it will cost you to ship by air for any given distance. The device, called the Air Express Shipping Estimator, is available free, and should prove useful in any plant or office shipping room.

2664-L

**How to Buy Alloy Steel**—*Joseph T. Ryerson, Chicago, Ill.*, has just issued a 24-page booklet containing information on what to look for in purchasing alloy steel. The booklet contains photographs of the operations in the Ryerson laboratories and workshops and a section listing the different types of alloy steels with their specifications.

2665-L

**Catalog for Solderers**—The complete line of soldering products made by the *P. Wall Manufacturing Co., Grove City, Penna.*, is described in their new catalog. Products include gasoline and kerosene blow torches, self-generating alcohol blow torches, electric soldering irons, solder, splicer's furnaces, paraffin supplies and compound kettles and many others.

2666-L

**Building with Glass Blocks**—“The Mark of a Modern Building—PC Glass Blocks” contains numerous photographs of buildings across the country built with glass blocks. The 40-page booklet sets forth the advantages of using the blocks for construction purposes, and contains a section of technical data on their properties and installation. *Pittsburgh Corning Corp., Pittsburgh, Penna.*

## READING GUIDE FOR WESTERN MANAGEMENT

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

### Controllershship in Modern Management

Edited by Thornton F. Bradshaw and Charles C. Hull, Richard D. Irwin, Inc., Chicago, 1949. \$4.00.

Under the sponsorship of the Controllers Institute of America, the editors have presented a thorough analysis of the controller's present status. Such outstanding men as J. Hugh Jackson, dean of the Graduate School of Business, Stanford University; Christian E. Jarchow, vice-president, International Harvester Company; and Richard L. Kozelka, dean, School of Business Administration, University of Minnesota; and others, have contributed to the book.

The entire work is a reflection of the increasing importance of the accounting function in business management. In addition to treating subjects commonly found in many books on controllership, the book challenges those who limit the activities of a controller to those of a bookkeeper. How many chief executives believe that a controller has a contribution in promoting a company's public relations program? How many believe that a controller has a place in developing the financial policy of business? Probably very few. The authors believe that, because of his position in having access to all information in a business organization, the controller can render important service in these matters and at the same time carry on his customary functions.

Members of boards of directors, presidents and vice-presidents should read this volume if they desire to get the most out of their investment in a controller's department. Deans of business schools likewise would gain much from this book. In this connection, Mr. Keith Powlison, vice-president of Armstrong Cork Company, points out that more effective training of prospective controllers be achieved by engaging practicing controllers as part-time instructors. He points out that many outstanding law and medical schools employ this device to keep their training basically correct in theory and sound in application.

*Controllershship in Modern Management* presents a forward-looking and progressive point of view. Certainly, it is an outstanding contribution in a field of business management.

Reviewed by:

W. T. BENSON  
Lecturer in Accounting and  
Business Statistics

### Public Relations for Retailers

By Tom Mahoney and Rita Hession. MacMillan Company, New York, 1949. \$4.50.

From its title, one might assume this to be a technical or specialized kind of book, of interest only to people who operate or work in retail stores. Not so this slim but sprightly volume. First, the writing style, format and whole manner of presenting the subject make the book inviting and readable. Secondly, the material is well organized. The co-authors get off on the right foot with their first two chapters, "Why Worry About Public Relations" and "Somebody Must Be Responsible," which not only define public relations as a management function, but also indicate how this phase of running a business must be organized and directed for best results.

Then, too, the pages of "Public Relations for Retailers" are enlivened by a variety and abundance of anecdotal and case-history material, well documented with photos, drawings, facsimiles and other illustrations. But all these factors, favorable as they are, would be of little consequence to the general reader if despite everything he should feel like the little girl who got a book on penguins for Christmas and wrote her indulgent uncle: "Thank you for the book; it tells more about penguins than I want to know about penguins."

The fact is, a substantial percentage of everyone in business has at least a potential interest in retailing. The ultimate sale of the product is the end-function of nearly everything we do in the production of raw materials, in manufacturing or processing, transportation, distribution, advertising, etc., etc. Further, public relations, in the sense of how to deal more successfully with people, enters in all along the line. And pretty much the same public relation's principles hold true in all cases, only their specific application differing.

Hence, because nearly all of us should know more about how goods are sold and how people should be handled, and because the writers do that job in a condensed and readable manner, this little book holds far greater reader interest than its title would suggest. Indeed, chapters such as those on attracting the customer, employee relations, informing the stockholders, handling the news, the public relations aspect of advertising, etc., apply almost as equally to other sectors of our economy as they do to retailing.

Finally, one can glean some profitable bits of elementary human psychology from the source material quoted. For example, clerks in shoe stores are importuned NOT to say: "One of your feet is larger than the other" but to say instead: "One of your feet is smaller than the other." You don't have to be a woman to appreciate that one.

Reviewed by:

BROOKS DARLINGTON  
Lecturer in Public Relations

### Briefer Guides From The Management Library

#### Business Ideas Handbook

By the editorial staff of Prentice-Hall. Prentice-Hall, Inc., New York, 1949. \$7.50.

A collection of 985 time-and-money-saving ideas on office management, accounting, advertising, sales management, credits, collections and purchasing.

#### Handbook of Sales Training

By the National Society of Sales Training Executives. Prentice-Hall, Inc., 1949. \$5.35.

Here is the combined experience of 85 sales training experts, who present the principles and methods used currently in the training of sales personnel. The coordination of sales training with other company training is discussed, and such topics as audio-visual aids, supervision, evaluation, and follow-up are covered.

#### The Supervisor's Management Guide

By M. J. Dooher and V. Marquis. American Management Association, New York, 1949. \$3.50.

This handbook presents the best human relations material published by A.M.A. during the past few years. A sequel to previous supervisory handbooks, *The Management Leader's Manual* and *The Foreman's Basic Reading Kit*, this guide brings the newest developments in management thinking and methods of supervisors and operating executives.

#### Supervisory Training: Case Studies

Policyholders Service Bureau, Metropolitan Life Insurance Co., New York, 1949

In response to frequent requests for specific examples of how companies go about training their supervisors, this study was made. The cases used were prepared by the executives of the various companies involved. In some cases, a complete picture of a company's supervisory training is presented; in others, a special phase of training is covered.

General Management Series No. 144, American Management Association, New York, 1949.

Includes: Positive management—dynamic motivation of human resources. Policies and principles of decentralized management. New goals in economic and labor policies.

Reviewed by:

BERNA M. CARLSON  
College Librarian



## REGIONAL REVIEWS

### Olympics to the Coeur D'Alenes

# Power Shortage Problems Show Up Month Earlier This Year

**Private companies and public utility districts also don't see eye to eye on methods to combat it. Seattle area's position improved**

**S**EATTLE—Power shortage conditions for the Pacific Northwest loomed up a month earlier this year. What actually develops during the winter can not be forecast at this time because "everything depends on the weather." The region's great hydroelectric plants can, of course, deliver no more power than they have water to put over the dams and the facts are that rainfall for the past several months has been below par.

Memory of last winter's touch-and-go situation, when some restrictions were placed on the heavy industrial users and broad public appeals were made to cooperate in a partial brown-out, is still fresh in the minds of the utilities people. In consequence they are making their plans well ahead for the 1949-1950 winter so as to be prepared, in military parlance, for any eventualities.

#### Aluminum Cutbacks

Bonneville Power Administration has been considering the early cancellation of a large bloc of interruptible power now provided to aluminum reduction plants in the Columbia River and Puget Sound areas. To forewarn power users, the BPA has instituted a series of weekly reports on water and power conditions. These reports will be made for the next several months while the higher peak hour loads occasioned by greater use of heat and light during the short, cool days of the winter season prevail.

A chart showing present conditions and those of past years indicates that the Western portion of the Northwest Power Pool probably can meet all en-

ergy demands if stream flow is up to average from now until early spring. But serious trouble is anticipated if stream flow drops below normal.

#### Conflicting Views

Not all is in accord between private power companies and public-utility districts developing overall plans for meeting the power shortage. Private companies feel that the PUD's and municipal plants should follow the formula laid down by the state's Public Service Commission. In essence, this proposal would ban all installations for space heating and new industrial applications using more than 500 kilowatts. The commission has jurisdiction only over the private companies.

The PUD's generally are taking the position that private steam plants should be operated to capacity to conserve water, and voluntary curtailment of power used should be tried before any mandatory regulations are put into effect. To support their position the Washington Public Utility Commissioners Association has sponsored a Conservation Committee.

#### Seattle Better Off

There is, of course, much new power in the offering for the Pacific Northwest, but that is not going to help the situation in the winter immediately at hand. The great McNary dam on Columbia River is far ahead in construction and now the Chief Joseph dam, 50 miles downstream from Grand Coulee, is in the initial phases. Rated by some authorities as the best low-cost power site existing in the world, Chief Joseph dam will rival the great Grand Coulee proj-

ect and have an eventual installed-capacity of 1,728,000 kilowatts. (Grand Coulee ultimate is 1,974,000 kilowatts; Hoover Dam is 1,322,500.)

Seattle area's power situation has been improved by the completion of a new northwest transmission line directly from Grand Coulee to a new substation at Snohomish, about 30 miles northeast of Seattle. Started in 1947, the power line crosses some formidable country in the Cascade range. Rated at 150,000 kilovolt-amperes, capacity can be increased to 250,000. Completion of the new line means that the Seattle area, previously tied in to Grand Coulee Power by a southern route, will now be less subject to service interruption.

However, these and other dams on the Columbia and other Pacific Northwest rivers, installed, under construction, or projected, are not looked upon as unmixed blessings in all quarters.

#### Troubles Over Fish

Fishermen, both sports and commercial, and attendant fish processing industries, are increasingly apprehensive about what artificial obstructions in the rivers will ultimately do to fish life, particularly the highly valuable salmon run. Engineers point to the large sums expended for fishways to get the fish around the dams—at McNary Dam the fishway will cost \$14,000,000, for example. But the fish-minded people are not at all certain that such fishways, with slack water pools above the dams, will permanently preserve the fisheries.

One stream in southwestern Washington, the Cowlitz, which has very good power possibilities and on which

*(Continued on page 72)*



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December, 1949—WESTERN INDUSTRY

## SEATTLE REGIONAL REVIEW

(Continued from page 70)

Tacoma's municipal power system has staked its claim, is also a very good salmon stream. Sports fishermen have been particularly vocal in endeavoring to preserve the Cowlitz as a "fish sanctuary." They are joined by the commercial fish interests. Cowlitz dam, sought by the City of Tacoma, was refused by the last Washington legislature.

### Dickering Over Sale

There is further action on the power front in the current dickering for purchase of the privately owned Puget Sound Power & Light Co. system, which serves most of the Puget sound region west of the Cascade range, by the public systems. Public bodies involved are the Seattle and Tacoma municipal systems and the PUD's.

The problem is a knotty one, with one of the basic questions being whether the private company is to be dismembered or acquired in its entirety. That the public bodies will ultimately take over is virtually a certainty, a condition of resignation to the inevitable which has led the power company to focus much of its efforts on salvaging the best deal it can for the stockholders. Prospect of Canadian natural gas being piped into Seattle and the Pacific Northwest from the prairie provinces is still

at least a year and a half in the offing. One spokesman who is closely identified with gas estimated that "if everything goes well," there is at least the possibility that Alberta gas might actually be flowing into Seattle by mid-1952. However, there are many political hurdles to be cleared before any go-ahead can be given on construction of pipe lines.

Further, there are now three companies in the field seeking the right to do the delivering. All are principally interested in delivering the gas in wholesale quantities, rather than in the customer distribution phases.

### Gas Needs Market

In brief review, these things are certain: there is a great supply of gas on the Canadian prairies, with plenty of exportable surplus above Canadian needs; and for many decades ahead; there is more market on the American side than in the thinly populated vast domain of Western Canada; there are two projected routes for delivering the gas from the prairies to more heavily populated areas of both Canada and the United States, one being an all-Canada route and the other south into the United States near Spokane in eastern Washington and thence west and north to serve Seattle and the Vancouver, B. C., areas.

The all-Canada route traverses a much rougher terrain and would involve higher pipe line construction costs, a factor which would have an important bearing on the final delivered price of gas.

There is the further fact that, under conservation measures, a number of wells in the prairies have been completed and capped because there is no present market for the gas which would be developed if these wells worked for the oil market alone. This state of affairs may hasten the final development of a gas line to the Coast markets.

### No Catchum Oil

Union Oil Co. has suspended operations on the Southwest Washington coast at Ocean City after going down pretty deep, only to find small traces of oil which ran ten barrels one day after a month-long production test. Drilling equipment is now to be moved to Carney Lake, near the Bremerton Navy Yard, across Puget Sound from Seattle. Another test well is to be drilled there jointly by Union and Standard Oil Co. of California.

### Fish Trap Problem

Turning now to fisheries, Puget Sound ports are now moving one of the biggest "money" packs of canned salmon in the history of the trade. What heralded a poor overall season when takes in the early part of the season ran light in the more northerly Alaskan waters, took a sudden turn for the better when an unexpectedly large run developed in southeastern Alaska. Labor troubles hounded the Puget Sound sector of the industry.

Up in Alaska a federal judge threw out part of the territorial Legislature's fish-trap tax. There has long been a controversy in the territory about traps. The traps are in the main owned by the larger companies. They are fixed structures set up in strategic waters, with trap sites being limited in number and somewhat hereditary. On the other hand, boat owners who take salmon by net or line operate in highly competitive fashion in the open waters wherever skill and know-how dictate to the individual. The boat operators are mainly small independent business men. They are, of course, more numerous politically than the larger trap owners and when a referendum was held in 1948 the vote was overwhelmingly against the traps. The 1949 fish-trap tax was, in the opinion of the judge, a regulatory rather than a tax measure. He expressed the view that the tax had abolishment of the traps as its actual objective.

On Puget Sound in Washington the fish traps were outlawed several years

• Port of Tacoma's four-story addition to its cold storage plant, now in operation, makes it possible to quick-freeze and store fruits and vegetables of growers within a 100-mile radius from the plant. This project was under direction of James Purvis, left, below, of Construction Engineers and Contractors, and George W. Osgood, right, chief engineer for the port of Tacoma. View at right shows men laying Fiberglas board to provide an eight-inch insulation topped by a 3-inch concrete surface.



ago. Recently there has been increasing complaint, largely by sportsmen, that salmon fishing in Puget Sound was becoming progressively poorer. This has led to new stirring up of the long-smoldering pollution problem. One of the major dailies of the region has taken up the cudgels. Washington has a tough pollution law and, as felt in some quarters, a much too eager pollution abatement administration.

In any event, the finger seems once more to be pointing principally at the pulp mills. They do dump waste liquors in vast volume into Washington's waters, but to what actual detriment has never been fully agreed upon. However, they do make handsomely large targets and "anything can happen."

#### Boeing Employment Dwindles

Boeing Airplane Company, which a few weeks held the center of the stage in a mammoth "Save Boeing for Seattle" fight brought about by the Air Force's proposed move to shift a lot of production to Boeing's plant in Wichita, Kansas, has moved to the edges of that particular spotlight. But employment is dwindling and is now down several thousand from the midsummer peak of 26,000, with forecasts in some quarters that, unless there is a change in Air Force policy, the figure will be only about half a year from now.

#### Also a Labor Fight

Another big spotlight has swung on Boeing, however, in a bitter jurisdictional fight by labor. The two principal contesting groups are Teamster Boss Dave Beck's Local 451, Aeronautical Workers, a relative newcomer, which has been flaunting loudly its AFL affiliations, and Lodge 751, Aeronautical Mechanics, affiliated with the International Association of Machinists. There are strong words uttered that the similarity of the names and numbers of the competing locals is not entirely accidental. In any event, the issue is currently up for an NLRB election.

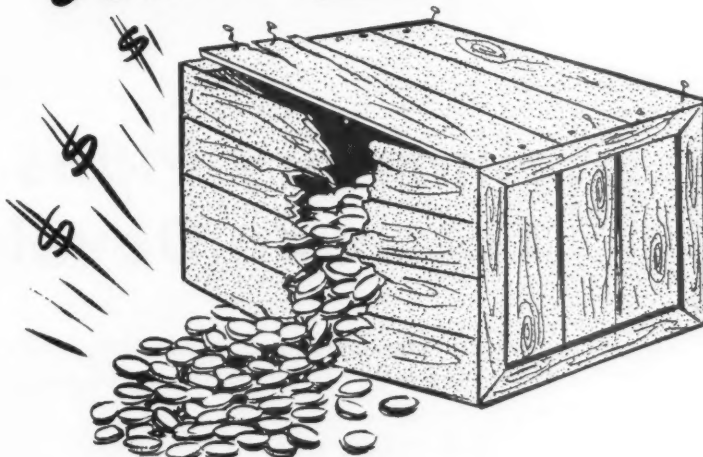
One little bright spot on the labor scene developed when workers in 35 Pacific Coast pulp and paper mills in a recent meeting in Tacoma agreed to a new contract calling for no wage increase, although there were some concessions on holiday pay and similar items.

#### Things Not Too Bad

Coal and steel strikes have not had appreciable effect in this corner of the country as yet. Wood industries, which are basic to the region, are in better shape than they were a few months ago. Construction is active. Things are still booming up Alaska way. Altogether, things look pretty good.

December, 1949—WESTERN INDUSTRY

# Could you be



## LOSING PROFITS

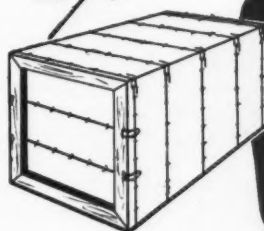
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## REGIONAL REVIEWS

### The Wasatch Front

# Preliminary Plans For Upper Colorado Development

**Reclamation Bureau proposes 9 reservoirs with 48,000,000 acre feet storage and 1,700,000 kilowatts power generating capacity**

**S**ALT LAKE CITY—At long last the U. S. Reclamation Bureau has come up with a preliminary plan for water storage development to the upper Colorado River basin which will undoubtedly win the approval and support of all the upper basin states—Utah, Colorado, Wyoming, and New Mexico.

Bureau officials have held a series of meetings with interested groups throughout the basin and in all instances the plan has been approved in principle.

#### Storage Capacity

It has been more than 30 years in the making, starting with the negotiations which led up to the signing of the Colorado River compact in 1922. The way was cleared for development of a concrete plan when the upper basin states agreed upon a division of the water within the basin in October of 1948.

The bureau's plan involves construction of nine reservoirs on the main stem of the river and its major tributaries. Collectively they would have a total storage capacity of 48,000,000 acre feet, of which 23,000,000 acre feet would be live storage. The remainder would be for evaporation and silt encroachment over the next hundred years.

#### Electric Power

Power generating capacity of the nine reservoirs would be 1,700,000 kilowatts. The bureau figures that this would produce sufficient revenue to repay the costs of the long-term storage development and provide a surplus to apply to the participating projects in the four states.

Cost of the nine dams and appurtenant works, figured on a basis of 1949 costs, would be approximately \$1,100,000,000.

#### Congress Must Authorize

This main stream development is of vital importance to all the upper basin states inasmuch as the potential participating projects are dependent upon it for two reasons: (1) to assure a dependable water supply and (2) to provide power revenues to make them economically feasible.

The proposed financial plan would require congressional authorization for the secretary of interior to return all power revenues from the nine dams (including the three per cent interest component) to the U. S. treasury.

#### Financing Program

This money would then be set up in a special upper basin development account to be used, first, for repayment of the storage dams and, secondly, for subsidization of participating projects which could not be financed by the sale of water to users.

The plan contemplates that only surplus could be used for participating projects and that deficits could not be incurred against the special account.

According to E. O. Larson, district director of the Bureau of Reclamation, the financing plan is unique with the bureau in some respects but there are precedents for use of the power interest component for repayment purposes in the Missouri and Columbia River basins.

The No. 1 unknown factor in the financing equation is the power market. But it is the conclusion of the Reclamation Bureau and Federal Power Com-

mission that the area can absorb the power years before all the proposed storage capacity will be needed for stream regulation.

This fits into the construction plan, as it would be necessary to get the power first to make the rest of the development economically feasible.

The principal power market, it is assumed, would be the Wasatch front. But it is contemplated that power would be made available also to the Green River basin in Wyoming, the Western slope of Colorado (with a tie-in to the eastern slope if that market was needed), and the lower basin.

#### Disposal No Problem

Some bureau people, in fact, think there would be more trouble over allocation of the power than there would be in finding a market sufficient to absorb it.

The selection of the nine damsites was dictated largely by their power potentials. The dams would be high and not the most economical for river regulation alone. But because power would have to carry the large share of the cost, head was of primary importance.

#### Glen Canyon the Key

The key structure of the lot would be the Glen Canyon dam, with a total capacity of 26,000,000 to 30,000,000 acre feet and power production of some 800,000 kilowatts. The other dams and their total capacity are:

Flaming Gorge, 4,000,000; Echo Park, 6,500,000; Split Mountain, 335,000; Cross Mountain, 5,000,000; Curcanti, 2,500,000; Black Canyon, 500,000; Bridgeport, 900,000; and Gray Canyon, 2,000,000.



The large amount of storage required arises from the fact that the Colorado River compact guarantees the lower basin a specified amount of water (75,000,000 acre feet over any ten-year period) and leaves the upper basin the erratic remnants. The flow at Lee's Ferry has fluctuated from a low of 3,900,000 acre feet in 1934 to a high of 25,000,000 acre feet in 1917.

Obviously, to equate such a widely varying stream and provide the upper basin with anything close to the 7,500,000 acre feet it was allotted annually, it will be necessary to provide storage sufficient to average the flow over a period of 25 to 30 years.

The Reclamation Bureau is thinking in terms of 25 years or so for completion of the main stream storage program.

Unemployment in Utah at the end of October rose to about 17,000 compared to 7,000 a year ago. And statisticians of the state department of employment security think that the figure may go as high as 30,000 by January. Employment in manufacturing and construction has steadily climbed during the year but there has been a falling off in government, railroad, and nonferrous metal mining employment.

The job situation is generally tight but there are still openings for various types of skilled workers which are going begging. Classifications for which demand exceeds supply include sheet metal men, electricians, carpenters, bricklayers, and iron workers.

In some areas, where metal mines have been closed down, there are unemployed surpluses of miners and in other spots there are labor shortages in the industry.

When the national defense department first announced cutbacks of civilian employment at military installations, Utahns took the news of this state's reductions calmly. The prevailing reaction was that too much money was being spent on the military and that Secretary Louis Johnson should be commended rather than condemned for doing something about it.

But subsequently someone dug up some comparative statistical information showing that the cut at Hill Field (air base) was much greater than at comparable fields in other parts of the country. Since that time the state's congressional delegation has been on the receiving end of an avalanche of letters which might well convince them (if they had not already arrived at such a conclusion) that people don't want government economy if it touches their own pocketbooks.

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## REGIONAL REVIEWS

### Continental Divide

# Continental Oil Concentrates On Western Home Territory

***And its folksy new president, McCollum, hits it off nicely with the Rocky Mountain area people. Rio Grande R.R. not so popular***

**D**ENVER — Something has come over the biggest oil company in the Rocky Mountain area—biggest in sales of petroleum products and refiner plants in Montana at Billings, Wyoming at Glenrock near Casper, Colorado at Denver, and New Mexico at Farmington. This is the Continental Oil Company, of course.

For one thing, Continental is pulling in its horns a bit, selling off some of its Atlantic coast marketing properties and concentrating closer to home in the Middle-West, Southwest and Rocky Mountain areas.

Another thing, Continental is putting up \$20,000,000 to drill more oil wells this year and here again the Rocky Mountain area gets the nod.

#### **Most Significant Change**

But the most significant change is in the mood of the men who run Continental Oil Company. They've taken a new lease on life, and quite frankly they'll tell you that what makes the difference is the new man at the top, L. F. McCollum. He isn't anything like crusty, opinionated, stick-his-nose-in-everything Dan Moran, the genius who built Continental into one of America's great oil companies.

#### **Tough Taskmaster**

Nobody was sure of anything when Moran came around, and he traveled constantly in a specially-made bus that might show up in California, Missouri, Colorado or New Jersey—nobody knew when, but everybody trembled. Ancient monarchs who yelled "Off with his head!" when displeased by serf or courtier had nothing on Dan Moran, who would fire individuals in refineries, service stations or offices if he detected the

slightest infraction of the company's standards of cleanliness or other policies.

Naturally, Continental lost a lot of good men who either fell afoul of the Great God Moran's wrath, or left for less ulcerous jobs. But all that has ended, and Continental can hardly contain itself with glee. Moreover, it wants the world to know what happened.



**L. F. MCCOLLUM**

Last month at Billings, Montana, the women and girls in a crowd of more than 5,000 looked at Continental's new president and whispered to one another, "Gosh, he's cute!" McCollum is handsome in a rugged way and he handles the language with just enough southern drawl and blarney to captivate

any audience, including the Billings crowd that came out on a cold day to help celebrate the opening of Continental's \$9,500,000 refinery. He told them Billings was the oil capital of the Northwest, an important manufacturing center as well as a great trading and supply point for the ranches, oil fields, mines and other industries of the midland Empire. They lapped it up.

Typically new-rich, Moran had to show off and push his empire clear to the seashore. McCollum, seasoned in Standard Oil of New Jersey's executive hierarchy, realizes bigness isn't something to brag about but rather to minimize.

#### **Sound Economist**

He exudes folksiness, and he follows sound economics in preferring to make maximum profits in a somewhat restricted territory rather than trying to spread all over the map and be everything to everybody. Yes, something has come over Continental Oil Company, and the Rocky Mountain area is holding high hopes it's a good change.

#### **Home Industry**

Perhaps Continental is the mountain-states counterpart of Standard of California and Richfield Oil on the Pacific Coast. People in Colorado, Wyoming, Montana, and northern New Mexico feel Continental is sort of theirs—they have no such proprietary interest in Standard of Indiana, Socony-Vacuum or Phillips, which are the other major marketeers in the area. But what Continental does or says matters, to people in the mountain area.

#### **Uinta Basin Blues**

How dumb can a railroad get? This question is being asked with increasing

# Silicone News



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frequency by the people of the rich Uinta Basin in northeastern Utah and northwestern Colorado. Their ire is centered on the Denver & Rio Grande Western Railroad, which doesn't go through their country at all but ought to, so they say. And if it doesn't want to do it, why doesn't it get out of the way and let the Union Pacific tap this so-wonderful but so-remote area?

### Gripe at the Rio Grande

Now the big gripe concerns a big government-financed dam scheduled to cost \$139,000,000 and to be built where the Yampa meets the Green in a wilderness spotted on the maps as Dinosaur National Monument. When oil companies were spending \$20,000,000 developing Rangely field in this same basin, there was agitation for an extension of the Moffat Line from Craig, Colorado, to some point on the D & R G line in Utah or to Salt Lake City itself. This was "Dave Moffat's Dream" and for a while it seemed it might be realized after all. But no, nobody builds railroads nowadays. Not even into an area that might be another Pittsburgh or Birmingham if it just had transportation other than by highway and pipeline.

### Is It Too Late

Even the great quantities of gilsonite that used to be trucked 125 miles to Craig, nearest railhead, now find their way in pulverized form into the Standard of California pipeline that moves Rangely crude oil to Salt Lake City refineries. But you can't haul millions of bags of cement for a great dam by pipeline (or can you?) and the vast quantities required for this one project ought to pay for a railroad if anything can.

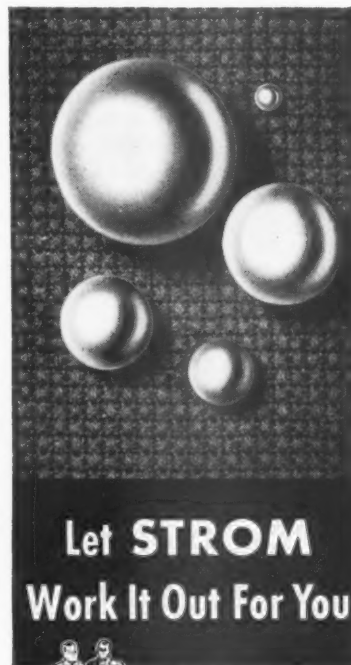
But nothing will happen. The sections that weren't lucky enough to get railroads when railroad building was in fashion are just out of luck today. Much more will be heard in the case of The People vs. Denver & Rio Grande Western Railroad.

### Thatcher — Empire Builder

This department has referred frequently to the vast industrial empire of the Boettcher family of Denver. A comparable tribe is that of Mahlon D. Thatcher of Pueblo, whose holdings may aggregate more than those of the Boettchers. In many enterprises the two families are in cahoots. In some, they are competitors and rivals. There isn't any record of them having ever engaged in anything like a real struggle of the sort that hurt either of the giants, although a few small fry may have been trampled a bit during the skirmishes that have ensued.

(Continued on next page)

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## DENVER REVIEW

(Continued from page 77)

Like the Boettchers, the Thatchers are heavily interested in sugar companies, both large and small. They just about are the beet sugar industry between them, although Holly and Spreckels operations presumably are outside their orbits. Thatcher now is the largest owner in Great Western Sugar as well as a major owner of National Sugar Co., whereas the Boettchers hold great chunks of Great Western and have most of American Crystal Sugar Company on the side.

Thatcher is the largest Colorado stockholder in Colorado Fuel & Iron Corporation and controls virtually every worthwhile enterprise in Pueblo, of which there are several. Much of the Thatcher domain is in ranches and farms, all over Colorado, Texas, New Mexico and who knows whereall. The family's business, ostensibly, is banking, chiefly in Pueblo and Denver. But mines, railroads, enterprises of seemingly unending variety are under the Thatcher influence. Somebody ought to write a book. . . .

### Journey Through Wyoming

We flew from Denver to Billings the other day, nonstop, and then motored

back to Denver by way of Hardin, Sheridan, Salt Creek oil field, Casper, and Cheyenne. Just a few words of candid appraisal from a reporter who has been over this country many times in the past 40 years and still likes it.

Greatest visible evidence of progress, of course, is in the area surrounding Denver. The industrial might of this metropolitan district is little recognized—and most of those who know all about it are content to make hay before the world gets hep to it—and most significant of all is the many new industrial structures all around the outskirts of Denver.

### Cheyenne

Cheyenne doesn't seem to have altered much since war days when the great refinery now owned by Frontier Refining Company was added to the skyline and one of America's great airports was developed within five minutes ride of the famous old Plains Hotel downtown. But there doesn't seem to have been anything of consequence lately, except gobs of houses. Just housing people must be quite an industry.

Nothing much between Cheyenne and Casper that looks any different from the way it looked 20 years ago. The

Continental refinery at Glenrock a few miles south of Casper is spic-and-span as usual, and the people of Glenrock were thrilled by some drilling on the edge of town that reported heavy saturation and might open up another oil field.

### Casper

Casper has grown and finally is getting more housing, which would have come in handier a couple of years ago but still is needed. Each of the three big refineries has been vastly expanded and modernized during the past two years and they now pour their petroleum products into Denver through a fairly new pipeline. The whole state is netted with pipelines and fewer tank cars are seen on the railroads, but still a lot. Casper has lots of almost-factories in the form of glorified machine shops which assemble drilling rigs, power units, pump assemblies and other such. If Casper weren't cursed with such poor rail transportation it would become an important manufacturing center. As it is, it remains the oil capital of the Rockies without a challenger.

North of Casper the great Salt Creek oil field is still going strong, now operated as a unit with Stanolind Oil & Gas Co., looking after the thousands of wells for all interested parties. It is still the most dramatic industrial spectacle between Butte's copper mines and Pueblo's steel mills, and there is nothing dead-looking about Salt Creek in spite of its venerable age. Trainloads of oil from Salt Creek, plus products from the early Casper refineries, are credited by military authorities with virtually saving the day for the Allies in World War I when armored tanks and the first planes were drinking up fuel in quantities that seemed fantastic in those days.

From Salt Creek northward to Buffalo is as bleak as ever, although Continental's new Taylor-Suses oil field just a few miles east has turned into one of the best finds in recent years. The lovely dude-ranch country around Buffalo isn't beatable for Western atmosphere. Sheridan is as seedy-looking as ever, and its nearby coal mines don't add any glamor. Northward into Montana and on through the Crow Indian reservation past Custer's battlefield to Billings is just undeveloped land waiting for America to fill up and make some use of it.

East of Sheridan, Wyoming, in the Weston County area around Newcastle, there is great activity because of booming Fiddler Creek, Mush Creek, and a dozen other new oil fields all getting a big play now. The oil is found in un-

• Pipelines that carry oil across the country need an occasional cleaning out, when excessive pumping pressures indicate that paraffin has accumulated on the inside of the pipe. This new oil line scraper, developed by Pioneer Rubber Company, San Francisco, is shown being pulled from a crude oil pipeline after a trip of 40 miles.



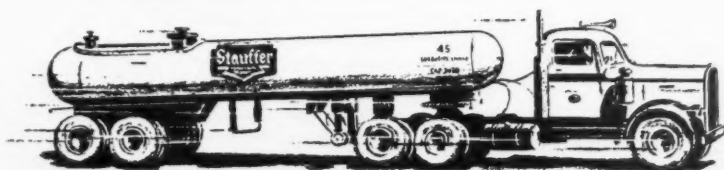


predictable spots, and lots of dry holes are drilled among the finest wells, but the overall results are so good that this is Wyoming's most active oil field area. Incidentally, the oil is very high gravity and there is now a pipeline outlet to markets plus two small refineries at Newcastle taking care of the Black Hills and prosperous Western Nebraska farming area.

West of Sheridan is the Big Horn Basin, and there again one finds progress and prosperity, mostly due to oil. Towns flourishing here are Cody, Powell, Lovell, Worland, Thermopolis,

Basin, to mention a few. Most of these have highly developed irrigated farming income, as well as oil business.

A research foundation was authorized by the Colorado-Wyoming Academy of Science at its annual meeting in Laramie, to receive and dispense funds in order to promote research. It is a non-profit organization, and is under control of the Academy of Science to the extent that the academy nominates and elects the trustees. F. X. Gassner of Colorado A. and M. College has been elected president of the board of trustees of the foundation.



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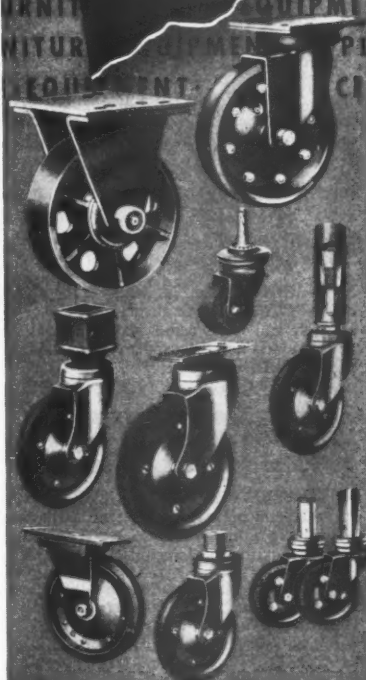
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# THE WEST ON ITS WAY

## ALASKA

**PULP MILL PLANS**—Ketchikan Pulp & Paper Co. plans to start work on Alaska's first pulp mill—a \$30,000,000 installation—this spring. Work will proceed as soon as an adequate road can be provided.

## ARIZONA

**BAKERY RAISES PRODUCTION**—Rainbo Bakery plant at 738W. Van Buren St., Phoenix, is building an addition 50 x 75 feet for increased working space and greater production.

**INDUSTRIAL MERGER**—Coates Company, newly-formed corporation, establishes the basis for a multi-million dollar Arizona industry, by recent purchase of Arizona Iron Works. Capitol Foundry, 502 South 15th St., Phoenix, was previously acquired by Coates Co. These two operations will be merged into a large three-phase effort to concentrate on supplying equipment to Arizona mines and industry. Arthur E. Coates, Illinois manufacturer, is president of the new firm. Jack Frye, president of General Aniline and Film Corp., N. Y., and John Bugas, vice-president and director of industrial relations for Ford Motor Co., are associated with Coates.

**INTERNATIONAL HARVESTER LEASES ACRES**—4,000 of them, about 23 miles south of Phoenix, to be used for testing industrial power trucks and motor trucks. Property was leased from Arizona State Land Department.

**MONARCH AIR LINES SPREAD WINGS**—with a \$500,000 loan by Valley National Bank of Phoenix, Central Bank and Trust Co., Denver, and Continental National Bank and Trust Co., Salt Lake City. Money will be used to pay off present loans, and to finance proposed Arizona routes.

## CALIFORNIA

**KAISER BLOWS IN BESS NO. 2**—Kaiser Steel Corp. has "blown in" a second blast furnace at the Fontana plant. This increases that plant's pig iron capacity to 2,400 tons a day, and doubles the potential pig iron capacity on the Pacific Coast.

**NAME CHANGE**—The corporate name of Kaiser Engineers, Inc. has been changed to Kaiser Industries, Inc. The engineering and construction division will continue to do business as Kaiser Engineers, a division of Kaiser Industries, Inc.

**NEW ENGINEERING FIRM**—Century Engineers, Inc., at 204 N. Parish, Burbank, is a new organization equipped to supply industry with engineering services of many sorts. They include: mechanical, electrical, chemical, and commercial engineering. Experience within the firm covers all phases of aircraft design, transportation equipment, radio, optical and astro-physical instruments and electrical equipment, according to Allen Baker, president.

**KAISER BUYS GYPSUM PLANT**—Kaiser has acquired Pacific Portland Cement Co.'s Redwood City, California, gypsum products plant. This operation and that of the Kaiser affiliated Standard Gypsum Co. of Calif., located at Long Beach, will henceforth be owned and operated by Kaiser Gypsum, a division of Kaiser Industries, Inc.

**PRINTING EQUIPT. FIRM BUILDS**—Sta-Hi Co., manufacturers of matrices and other newspaper composing room equipment, have broken ground in Whittier for their new \$70,000 West Coast headquarters.

**MODESTO FIRE**—S. P. Weldon Milling Co.'s feed elevator was destroyed in a fire that started in one of a dozen of that firm's 65-foot-high wooden bins.

**CROSSE & BLACKWELL IS LOOKING**—Joseph Blackwell, of Crosse & Blackwell, 243-year-old London, England, firm, has been visiting in San Jose and Monterey, seeking possible sites for processing expansion.

**PERMANENTE CEMENT ADDS STEAMER**—Santacruzement is the name of Permanente Cement Co.'s latest seagoing addition. It has a capacity of 40,000 barrels of bulk cement, and is the second self-loading cargo cement ship on this coast. Permanente Silverbow is the other.

**ELLIOTT CO. EXPANDS**—Business and assets of the Crocker-Wheeler Division of Joshua Hendy Corp. have been acquired by Elliott Co., giving them a complete line of motors and generators from one to 25,000 horsepower.

**SIMPLOT BUYS MORE**—J. R. Simplot purchases E. T. Fisher's half interest in Cal-Ida Lumber Co., located between Auburn and Grass Valley, California. George Duff is named general manager.

**NEW WEST COAST SHIP SERVICE**—Pacific Argentine Brazil Line starts monthly service from the Dominican Republic to Oakland and Pacific ports. Pope and Talbot are agents for the line. P & T Seafarer, first vessel on the line, sails from Puerto Plata for the Bay area on Nov. 20.

**PANAMA CLIPS 7 HOURS TO TOKYO**—Pan American Airways inaugurated twice-weekly flights to Tokyo from San Francisco, with running time cut seven to eight hours.

**LODI WINE PLANT LEASED**—Shewan-Jones wine processing plant at Lodi has been leased by Mike Bekedam, head of California Grape Colony and developer of Val-Sweet. He will use the Lodi plant to turn out Val-Sweet. Lease runs for one year, and if the market expansion proves satisfactory, California Grape Colony will build their own plant in Lodi.

**10-FOOT BUTTERFLIES**—Westinghouse Electric Corp.'s Sunnyvale plant has a contract for building two 120-inch butterfly valves for Southern California Edison's Big Creek Powerhouse No. 4.

**G.E. BUILDS FOR KAISER**—More than \$2,500,000 worth of electric drive and control equipment is being built by G.E. for the West Coast's first continuous hot strip steel mill, to be installed at the Kaiser Plate Mill in Fontana, Calif.

**KAISER DECENTRALIZATION PROGRAM**—goes into operation at Long Beach, where 20 cars per day will be assembled from parts shipped from the Willow Run plant.

**154,000 GALS OF O.J.**—The major part of 154,000 gallons of orange juice concentrate bought by the government for the national school lunch program will be produced in California processing plants. Almost half the order will be manufactured at the Exchange Orange Products Co., Ontario. About 12,000 tons of oranges are involved.

**ASBESTOS SEARCH**—Long-standing strike in Canadian asbestos mines has cut off supply to California manufacturers. Result is a search for asbestos deposits in California, centered around the Highland Lake area in Shasta and Trinity counties.

**FIRE DAMAGE**—estimated at more than \$125,000 was suffered by Rialto Corp., Los Angeles, when about half of that firm was destroyed. The plant, at Palm Ave. and Santa Fe line, was formerly occupied by Morrow Aircraft. Rialto Corp. manufacture high pressure pumps and other industrial equipment.

**NEW SWEDISH GANG MILL AT FORTUNA**—is being built, at estimated cost of \$350,000, for Clay Brown & Co., of Portland, Ore., and Eureka, Calif. The gang mill will be a 36x36-inch, designed particularly to handle long timbers. Initial production will be in dimension and boards for a major Los Angeles housing market. The mill will have a 2,400-foot railroad track frontage, and a 1,000-foot spur track. An 18-acre log pond is being built. Plans call for installation of a complete planing mill, in addition to the sawmill now under construction. The gang mill is scheduled to be in operation by Jan. 1, 1950.

WESTERN INDUSTRY—December, 1949

## THE WEST ON ITS WAY

**MATSON SELLS UNITED ENGINEERING CO.**—to a group of Pacific Coast businessmen. Sale includes the name "United Engineering Co.," land at 500 Beale St., San Francisco, 11 buildings, shop equipment, and machine tools. Matson retains their shipbuilding facilities at Alameda, now leased to Todd Shipyards, and a building at Steuart and Folsom Streets, San Francisco. Buyers are Mel Jacobs, Ellis Jacobs, and Philip Sussman, San Francisco, and Louis Dulien, Seattle.

**NEW 7,600 MPH WIND TUNNEL**—California Institute of Technology, Pasadena, has completed a new wind tunnel designed to test rocket weapons of the future, at speeds ten times as fast as sound. This tunnel, designed and built for Army Ordnance Department, has already produced wind speeds of about 7,600 miles per hour.

**POWER PURCHASE**—California Electric Power Co., Riverside, has been authorized by the Power Commission to purchase the facilities of San Geronio Electric Corp., Los Angeles.

**SHOE FIRM GETS WEST INDIES PLANT**—Joyce, Inc., Pasadena shoe manufacturers, have taken a long term lease with option to buy, on Puerto Rico Shoe & Leather Co., in Ponce, Puerto Rico. This plant will be used to manufacture men's casual shoes. It is expected to be in operation by January 1950, with first production timed for April selling.

**NAVY REDUCES FLEET**—77 active Navy vessels, including five aircraft carriers and six cruisers, will be inactivated during the current fiscal year. About half of them will be berthed in the West. Twenty-three will be stationed in California ports, two in Washington, and 12 in Oregon.

**HOUSE FACTORY**—Mobilhome Corp., Bakersfield, opens a new San Diego factory designed to turn out one house per day, on an assembly line production. New plant is at 2751 Frontier St. Kenneth A. Glazebrook is manager and executive vice president; E. S. Anderson is vice-president in charge of purchasing. This is the tenth branch of the company, with more being planned.

**TUNA CLIPPER BURNS**—Yankee Mariner, 123-foot tuna clipper, recently burned and sank off Point Arguello.

**NEW CANNERY PLANNED**—Santa Clara Packing Co., San Jose, purchases a 12½ acre section in Minardi industrial area, on which they plan to put up a new cannery to replace the now outgrown North 8th Street plant. Construction will start immediately.

**LOS NIETOS SOLD TO UNION OIL**—All outstanding capital stock of Los Nietos Co. has been purchased from the five grandchildren of the late E. L. Doheny by Union Oil Company, for \$22,400,000 cash plus 600,000 shares of Union Oil common stock.

**MONSANTO CHEMICAL BUYS SITE**—An eight-acre site in the Passetta Industrial tract on Santa Clara - Alviso Road has been bought by Monsanto Chemical Co. They plan to build a \$500,000 manufacturing plant there, to produce synthetic resins and specialty coatings for the California area.

**PACKARD-BELL TO EXPAND**—A new \$250,000 building is to be erected on Olympic Blvd. West of Bundy Dr., for Packard-Bell Co. The site's three acres offer room for expansion of the one-story, 54,000-foot plant.

**LAND OF PLENTY**—Stockpiling of \$9,000,000 worth of lumber in Hanford in 1947 was revealed in Washington recently, along with information that about 40 per cent of it has not been used, and about 20 per cent of it will not be needed. Surplus lumber will be sold without loss.

**SULPHUR PRODUCTION UNDER WAY**—Stanolind Oil Co.'s plant near Powell is now producing sulphur at the rate of about 30 tons per day. It is expected that production will be stepped up to about 50 tons per day, eventually.

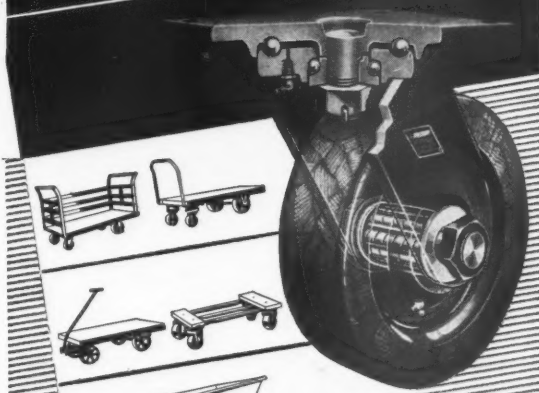
## COLORADO

**OLIVER COAL CO. CHANGES HANDS**—Utah Fuel Co. & Calumet Fuel Co. acquire the Oliver Coal Company, with their 100 per cent mechanized mine about 2½ miles east of Somerset, Colo.

(Continued on next page)

December, 1949—WESTERN INDUSTRY

# Unbreakable "workhorses"

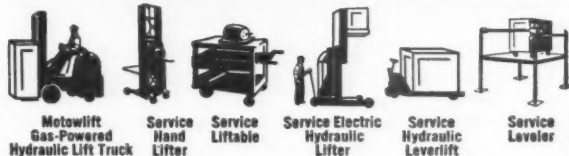


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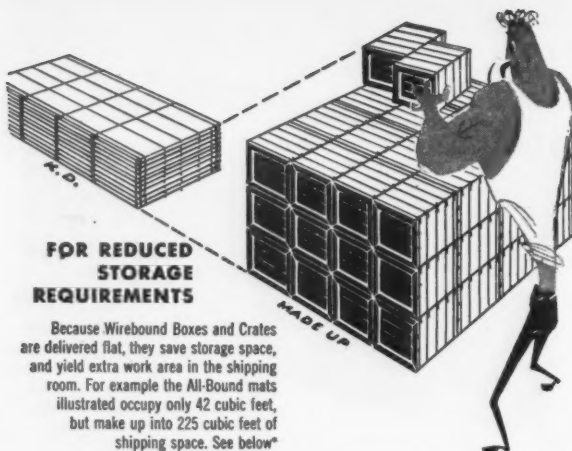


## SERVICE CASTER & TRUCK CORP.



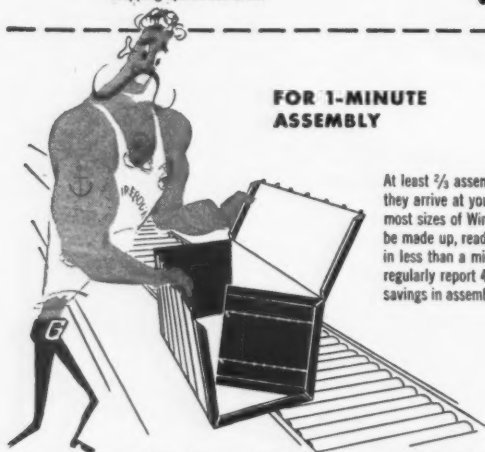
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OUR PRODUCT IS

## THE WEST ON ITS WAY

### IDAHO

**RADIO STATION SOUGHT**—Blackfoot Broadcasting Co., Blackfoot, Idaho, has applied for a new standard transmitting station, to operate on 1490 kilocycles, 250 watts, unlimited time.

### MONTANA

**PIPE LINE STARTS PIPING**—Crude oil has started traveling from Elk Basin and Frannie fields to Billings, through the new 12-inch pipe line. Capacity of the 70-mile-long line is 40,000 barrels daily. Farmers Union refinery in Laurel, and the Carter and Continental plants in Billings receive the oil. An old eight-inch pipe line will be scrapped.

### NEVADA

**PERLITE PLANT PLANNED**—Henry Schwabrow, Pershing county mining man, in partnership with Marion Schendel and Everett Chapman, engineer of Pennsylvania, plan erection of a perlite crushing and grading plant outside of Lovelock.

### NEW MEXICO

**HUGE REA LOAN**—A \$3,975,000 loan has been granted by REA to Jemez Mountains Electric Cooperative. This loan will be used to (1) purchase the Espanola power plant, and (2) construct another, whose site has not yet been decided.

## SALESMANSHIP has been dead for 10 years!

Growing competition makes it imperative that management take immediate steps to re-train salesmen to again use aggressive selling tactics. To supply this need, Rockett Pictures has produced a hard hitting Series of eight Sound Slide Films titled, "AGGRESSIVE SELLING."

Designed for easy use by the executive, each film delivers complete training on its subject yet remains fully integrated into the Series.

The titles are:

1. "The Sleeping Giant"—American Salesmanship
2. "By-Passing Sales Resistance"
3. "The Attitude That Gets Business"
4. "What Do You Sell?"
5. "Are Prospects Really Different?"
6. "Pride in Price"
7. "Human Relations in Selling"
8. "Close Isn't Closed"

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## THE WEST ON ITS WAY

**WESTERN ELECTRIC TAKES OVER SANDIA**—Western Electric, a subsidiary of American Tel & Tel, is now operating Sandia Laboratory through a new, wholly-owned subsidiary, Sandia Corp. Operation was transferred from University of California on Nov. 1. Sandia Corp. will call upon both Western Electric and Bell Telephone labs for scientific services and technical assistance.

**NEW PAINT FACTORY**—New Mexico Color Corp. will be the name of Mac-O-Lac Paint & Varnish Works' new paint factory at Albuquerque. This new plant is expected to be in operation in December, employing between 10 and 15 persons. Address is North San Mateo Drive and Central. J. J. Razelman has been engaged as paint chemist.

## OREGON

**PLYWOOD CO-OP FORMED** — Mutnomah Plywood Corp., a newly-formed cooperative, purchases the uncompleted Portland Plywood Corp. plant in Portland. They expect to be in production by January. Officers of the new firm are: F. A. Johnson, president; George A. Cramer, Sweet Home, Ore., vice-president; Clyde A. Smith, Port Angeles, Wash., secretary, and John A. McMillan, Tacoma, Wash., treasurer.

**GRAIN ELEVATOR FIRE** — Wallowa County Grain Growers' grain elevator at Enterprise burned recently, taking with it 80,000 bushels of grain.

**WEYERHAEUSER SELLS PLANT**—Ewauna Box Co., at Klamath Falls, sold by Weyerhaeuser Timber Co. for \$1,000,000 to Hercules Powder Co. of Wilmington, Delaware. Hercules plans to set up a pilot plant for chemical research of wood products.

**BRICK PLANT BURNS**—Donald Brick & Tile Co., Oregon City, lost its main building and most of its machinery in the town's most damaging fire in history. Joe Fisher and Son, owners, expect to rebuild and be back in production by around the latter part of February.

(Continued on next page)

## BEARINGS

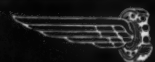
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**THIS U-Type Clean-Out Manometer** is for checking gas and air pressures from a few ounces up to several pounds. Suitable for either portable service or permanent installation.

The head is quickly removed — with a few turns of the wing nut — permitting quick cleaning of tube, with brush furnished. This feature also adds to its portability. It also allows convenient changing of the indicating fluid (oil, water or mercury).

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The Pacific Telephone  and Telegraph Company

## THE WEST ON ITS WAY

**COOPERATIVE EFFORT**—F. G. Lamb Co., Milton-Freewater, and Smith Frozen Foods Co., are combining their facilities for pack expansion. Company identities will remain separate.

**KAISER TO BUILD PLANT**—Kaiser-Frazer Corp. plans a \$350,000 assembly plant in Portland, to be built by Union Pacific Railroad and leased by K-F for the purpose of assembling their automobiles. Assembly operations are expected to start some time after the first of the year. This will be the first of a number of small assembly plants the firm expects to spot around the country. Some parts, like bodies, will be manufactured at Willow Run and shipped to assembly points; the Portland plant will make its own chassis, and will purchase on the West Coast as many other production parts as are available in the area.

**NEW WEYERHAEUSER MILL**—is being built at North Bend. It will cut about 75,000,000 board feet yearly on a single-shift basis. Cost is estimated at about \$2,000,000.

**NEW FORD TRACTOR WAREHOUSE**—Pacific Northwest Ford Tractor Co. is constructing a new \$200,000 distribution warehouse in Portland. From this point, Ford tractors and Dearborn farm equipment will be distributed to dealers in Oregon, Washington, Alaska, and 13 Western Idaho counties.

**WEYERHAEUSER DEVELOPS PROPERTY**—Weyerhaeuser Timber Co. will probably (according to reports) start development work on their North Bend sawmill property soon. Plans call, first, for erection of a half-mile long bulkhead around the shore of the site. Final plans for the sawmill have not yet been completed, but are being formulated. They expect to build a 75,000,000-feet-a-year mill (working on a single shift basis).

**STODDARD LUMBER CHANGE**—Stoddard Lumber Co., at Baker, opens under the name of Baker Lumber Co. A new partnership is operating the plant, now open after a two-month shutdown. G. P. Lilley, Knox Burno of Chicago, and Tony Bradenthaler of Baker compose the partnership.

## NO SPRINGS TO BREAK in the *Nutting* JACK IT'S ALWAYS DEPENDABLE

The Nutting Jack is the ONLY jack operated entirely by gravity and leverage. With no springs to break, there is no danger of your whole jack-skid system suddenly being put out of service.

One lift truck and two dead skids cost about the same as two Nutting Jacks and twelve semi-live skids. That's one reason why the Nutting Jack and Skid system can be such a money-saver in your plant. Material stored on semi-live skids is made mobile in a hurry. The jack may be coupled to one skid, then uncoupled and coupled to another faster than the time it takes to tell about it.

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WESTERN INDUSTRY—December, 1949

## THE WEST ON ITS WAY

### UTAH

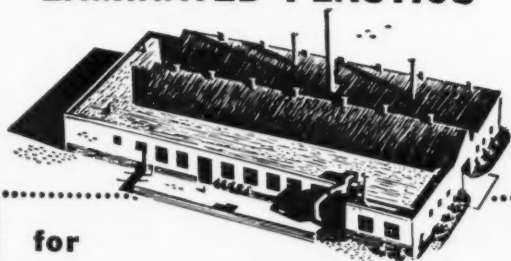
**INCARCERATED INVENTOR INCORPORATES**—McCoy Tool Corp., capitalized at \$100,000, is one of the newest Salt Lake firms. Robert H. McCoy, vice-president of the firm, is inventor of a "revolutionary type of metal cutter" which he built from pieces of scrap steel and iron found in the Utah prison's automobile license shop. McCoy has been a prisoner there for 24 years. He was sentenced to life imprisonment in 1924 for a slaying, but the sentence was commuted to 25 years in 1934. He will be eligible for release in December. Other incorporators of the company are: Murray City Judge W. Douglas Allen, president; Mason W. Hill, former prison warden; R. A. Devine, former deputy warden; Adrian B. Pembroke, chairman of the state board of correction; and Leonard S. Ralph, attorney. Ex-warden Hill will probably be general manager of the tool manufacturing firm.

**OIL MERGER COMPLETED**—Completion of final steps in merging Wasatch Oil Co. into Phillips Petroleum Co. is announced. This merger has been in process for more than two years, and now Phillips takes over the present assets of Wasatch Oil Co. All Wasatch installations will continue to be named by present personnel. Petroleum products will continue to be sold under the "Phillips 66" trade name.

**\$10,000,000 REFINERY EXPANSION**—Salt Lake Refining Co. plans a \$10,000,000 expansion project, with construction scheduled to start on its principal phase around March 1, 1950. This new catalytic unit will increase refinery operations in general, particularly adding to the output of high octane automobile gasoline.

*(Continued on next page)*

## LAMINATED PLASTICS



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### Western manufacturers ONLY

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**SAFETY IS CHEAP!** Protection from open conductor bars on cranes and monorails is now available at low cost with CON-L-DUIT, a specially compounded neoprene-base insulation. It complies with Safety Codes of all States. Two sizes to fit all new and existing figure-8 conductor bar systems. Is practical on curves, straight runs, switches, interlocks and drop sections. Easy to install, safe, fool-proof, and economical.

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## THE WEST ON ITS WAY

TELEVISION TUBES — Eitel-McCullough Co., Salt Lake, will begin full-scale manufacture of 16-inch television tubes about the first of 1950.

## WASHINGTON

URANIUM CONCENTRATING MILL—is being built about 30 miles south of Roslyn, to handle ore from a 2,000-foot vein said to be 300 to 500 feet wide.

### LET US MANUFACTURE FOR YOU

YUBA offers you complete shop facilities for contract manufacturing at Benicia, California, on San Francisco Bay. We can do all types of shop and foundry work—



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NAVY TO BUILD 1,000,000-WATT TRANSMITTER—said to be the "most powerful radio station in the world." This will be part of a communications station under preliminary construction at Jim Creek, Snohomish county. It will be 20 times more powerful than the biggest commercial radio stations. Purpose of this station will be to send out strong low frequency waves, needed to provide positive means of communication with ships and planes.

TWO NEW CORPORATIONS—In Wenatchee, the Apple Capitol Manufacturing Co. is incorporated for \$100,000 by Frank Kammer, W. L. Sewell, et al, to deal in real property and to manufacture different kinds of materials, articles, and equipment. In Spokane, the Golden Anchor Mining and Milling Company Consolidated incorporates with capital at \$1,000,000, by Frank Davis et al.

NEW HEAVY CONSTRUCTION—Construction of heavy duty cranes, marine elevators and material handling equipment which has been the backbone of Colby Steel & Engineering Co., will now be undertaken by a newly-organized firm known as Colby Steel & Mfg. Co., Inc. The former company will continue in existence, but be devoted to other interests. M. S. Alexander, vice-president of the original firm, becomes president of the new one; A. L. Senn, Sr., supervising engineer of the old firm, becomes vice-president and general manager of the new one; Charles D. Gould, chief engineer in the old company, becomes vice-president and chief engineer in the new one. Fred Wubben, assistant treasurer of the old firm, becomes treasurer of the new one. Mark R. Colby remains as president of Colby Steel & Engineering Co.

\$25,000,000 TO BE SPENT AT HANFORD—by the AEC for expansion. This is in addition to the \$80,000,000 in the 1950 fiscal year budget for expenditure there. The \$25,000,000 expansion plan is of a more immediate nature.

SEATTLE EXPANSION RECOUNTED—A total of \$1,937,000 was spent in the Seattle metropolitan area for industrial expansion during October. Three new industries accounted for \$305,000 of that amount and were responsible for 47 new jobs.

## METZGAR—Portable "Power Helper"

Solves the power problem  
in your conveyor line.  
Serves as loader  
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Strong,  
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The Newest  
in Portable  
Power Belt  
Conveyors

Horizontal position is adjustable from 31" to 36". Angular position adjustable from horizontal through 35°. Maximum discharge height — Model 10-P, 88"; Model 15-P, 132".

Basic Length 10' or 15'

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# WESTERNERS AT WORK

## Arizona

Reed F. Welch succeeds Brent N. Rickard as manager of the American Smelting and Refining Company in the Tucson area. Rickard retired because of ill health but will remain with the company in an advisory capacity until July 1, 1950.

## California

Lt. Col. William Palmer, one of the group of shipping experts who set up the Army's transportation system in the Southwest Pacific early in World War II, named Superintendent of the Water Division, San Francisco Port of Embarkation. He succeeds Lt. Col. S. F. Hyde, who has been transferred to Bremerhaven, Germany.



D. J. Haughton

pany, replaces Newman L. Smith, resigned.

Arthur F. Kelly, formerly assistant to the president of Western Air Lines, named vice-president in charge of sales with headquarters at Los Angeles. He replaces Richard A. Dick, resigned.

Joseph M. Druliner appointed chief industrial engineer for Northrop Aircraft, Inc., to head industrial engineering planning and activities for F-89, all-weather interceptors and C-125 transports.

John C. Lyman, dry milk division production manager of Golden State Company, Ltd., San Francisco, assumes duties which include supervision of departments of quality control, industrial engineering, production engineering and planning and automotive fleet operations throughout the company, reporting directly to the general manager. E. W. Littlefield, former manager of the dry milk division, named special assistant to the president. Stuart A. Mitchell becomes manager of company's newly-formed manufacturing division, including supervision of dry and evaporated milk plants in California, cheese operations in Montana and domestic and export sales of dry milk products.

R. W. Markley, Jr., former assistant to the director of contract requirements of Douglas Aircraft Co., joins Aircraft Industries Assn. as assistant to the director of the industrial planning service.

Earl D. Needham, formerly assistant purchasing agent in Des Moines, promoted to purchasing agent, Solar Aircraft Co., San Diego. Philip L. Ward transferred to Washington, where he will be manager of the contract administration office.

Ford Palmer appointed director of military sales for Pacific Airmotive Company, Raymond E. Vail becomes acting division

manager at Oakland, Calif., and Cecil O. Bryant, former manager of Fresno division, named manager of Anchorage division in Alaska.

William Henry Harrison named general manager of Mutual Enameling & Rustproofing Co., Los Angeles.

H. C. Mathey elected president of Stuart Oxygen Co., manufacturers of industrial and medical gases, with headquarters at the company's Los Angeles plant. He succeeds W. A. Brown, Jr., who remains as a director in the company.



H. C. Mathey

Carl W. Luthey appointed factory manager for Vic Pastushin Industries, Inc., Los Angeles. Luthey will be responsible for all production activities of the company's plant adjacent to Los Angeles International Airport.

Kermit R. Sadler, formerly manager of traffic and warehousing at the B. F. Goodrich Company's Los Angeles plant, leaves that post to become general traffic manager for the company at their main offices in Akron, Ohio.

L. H. Powell, assistant to chief engineer for Santa Fe Railway System at Chicago, appointed chief engineer at the company's Coast Lines headquarters at Los Angeles. He succeeds M. C. Blanchard, retired.



B. A. Bannan

and will be responsible for coordinating manufacturing operations.

Roy C. Menzel, works manager at the Los Angeles plant of General Metals Corporation, Oakland, Calif., promoted to secretary and treasurer of the corporation, with headquarters at the Oakland plant. He has been with the company for the past 25 years.

L. F. Williams, former assistant electrical engineer, becomes electrical engineer for Southern Pacific Co., with headquarters at San Francisco, succeeding Paul Lebenbaum, retired. G. W. Kahler, electrical inspector, takes over Williams' former job.

Union Oil Co. of California names Lon D. Cartwright chief geologist; E. R. Atwill, manager of Rocky Mountain division, with headquarters at Laramie, Wyoming; R. G. Greene, manager of exploration, Pacific Coast.

Roy Linden elected a vice-president of Union Oil Co. of California.

Samuel F. Dubs appointed chief metallurgist for Morris P. Kirk & Son, Inc., Los Angeles.

Harold H. Keays becomes superintendent of products at the Los Angeles Lincoln-Mercury plant of the Ford Motor Company. He was formerly superintendent of the trim department at the Detroit Lincoln plant.

Burt C. Monesmith appointed assistant to the vice-president in charge of manufacturing at the Lockheed Aircraft Corporation, Burbank. G. A. Fitzpatrick, formerly superintendent of Lockheed's jet fighter production, will replace Monesmith as works manager.

R. C. Fuller named general manager of Pacific Division, Bendix Aviation Corporation, North Hollywood. Fuller, who has been with the Division nine years, has successively held the positions of sales manager, general sales manager, West Coast Division, and assistant general manager, Pacific Division.



R. C. Fuller

New officers for Los Nietos Co., wholly-owned Union Oil Co. subsidiary, are: Reese H. Taylor, president; W. L. Stewart, Jr., executive vice-president; H. W. Sanders, vice-president and treasurer; L. A. Gibbons, vice-president and general counsel; R. F. Niven, secretary; Irvin Hancock, comptroller; W. H. Steele, assistant comptroller, and H. A. Lapham, assistant comptroller.

E. Van Vechten elected vice-president of CJW Corporation in North Hollywood, with James L. Adams named secretary-treasurer. The firm manufactures a load-set web lock, used by various types of carriers for securing of cargo loads.

## Colorado

Clio L. Kem of Denver elected president of the Leadville Lead corporation, succeeding Robert E. Harvey of Denver, who moved up to new office of board chairman. George S. Casey named a vice-president and executive committee chairman of the firm. Ben L. Wright, Jr., secretary, and Francis X. Wieck, treasurer, both of Denver, re-elected.

R. J. Herring, former secretary and treasurer of the Denver & Rio Grande Western railroad, appointed comptroller of the company, replacing C. A. Zehnder, resigned. William O. Colwell and T. A. Thompson appointed respectively treasurer and secretary. Harley B. Nies named assistant vice-president, filling a vacancy created by the death of W. C. Jones.

The Colorado State Board of Coal Mine Examiners is joined by Leonard Ford, general mine foreman at Colorado Fuel & Iron's Frederick mine. His term will continue until January, 1953.

(Continued on next page)

E. C. Bitzer named executive vice-president and general manager of Colorado Iron Works. Bitzer will be in direct charge of all the company's operations, which include machinery manufacture, metallurgical testing, plant design and construction.

All officers of Colorado Fuel & Iron Corp. re-elected at the recent organization meeting of directors: Carl W. Meyers, president; A. F. Franz, executive vice-president; A. C. Bekaert, Franklin Berwin, J. J. Martin, N. H. Orr, vice-presidents; H. C. Crout, treasurer; D. C. McGrew, secretary; Earl D. Page, controller.

#### Idaho

William P. Davis elected president and general manager of Potlatch Forests, Inc., succeeding the late C. F. Billings as general manager and G. F. Jewett as president. Jewett becomes chairman of the board. The company's change in personnel coincides with their entrance into the field of manufacturing pulp and paper products in order to make maximum use of northern Idaho's mixed species of lumber; the company's plans call for erection and operation of a modern pulp and paper mill integrated with lumber and veneer plants at Lewiston.

#### Montana

Albert E. Williamson chosen industrial engineer for the Montana Chamber of Commerce industrial development division.

#### Nevada

John C. Kinnear, Jr., appointed as assistant general manager of Nevada Mines division of Kennecott Copper Corporation. Kin-

near's former position was that of assistant to the general manager at McGill after his transfer from the Chino mines division at Hurley, New Mexico.

#### New Mexico

Carsten C. Steffens resigns as assistant director of Stanford Research Institute to accept an associate professorship at the University of New Mexico, Albuquerque, teaching physical chemistry. Dr. Steffens's principal contributions to research at the Institute were in the field of smog investigation.

#### Oregon

John A. Ream, former personnel supervisor of the West Linn Division of Crown-Zellerbach Corporation, assigned new responsibilities as a field representative for the company's Retirement Plan Committee, in cooperation with the Industrial Relations Department. His operating headquarters will be in Portland. D. S. Coney promoted to personnel supervisor of the West Linn mill, and George LaHusen, assistant personnel supervisor.

J. L. S. Snead, Jr. appointed executive vice-president of Consolidated Freightways, Inc., Portland. Snead has been with the company since 1930.

Bradley A. Burnside of Portland named product development and promotion manager for Timber Structures, Inc.

Elias C. Atkins III, formerly manager of mill sales, promoted to assistant to the vice-president of the Indianapolis firm of Atkins & Co. Atkins' headquarters will be at the Portland, Oregon, factory branch.

#### Utah

Charles L. Waggoner resigns as general superintendent of Geneva Steel plant. James V. Mazurie appointed superintendent of rolling mills at the plant, succeeding R. D. Peterson, who takes over new duties as assistant to general superintendent.

Four executives at Utah Oil Refining Co. promoted as follows: R. G. Clark, now chief engineer, to refinery manager; R. C. Watkins from position of assistant refinery superintendent to refinery superintendent; George E. Hinckley from chief operating foreman to assistant refinery superintendent; H. M. Thomson from assistant chief engineer to chief engineer.

Howard B. Gunderson, president, Salt Lake Area Vocational School, to serve as supervisor of training for the Utah Copper Division of Kennecott Copper Corporation at Salt Lake City.

Fred Stone Mulock advanced to the presidency of the United States Smelting, Refining and Mining Co., effective Feb. 1, 1950, succeeding Michael H. Kuryla, who retires at that time. Walter Chatfield Page, at present assistant general manager of Western operations, becomes general manager of operations on January 1, 1950.

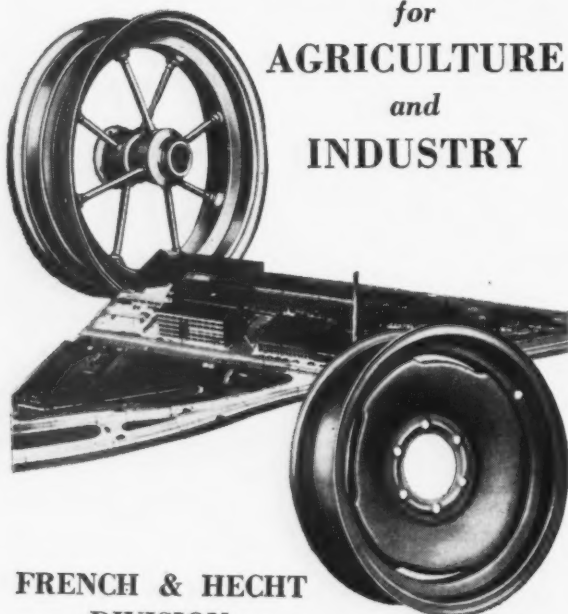
#### Washington

Dr. Earl G. Hallonquist, for the past four years in charge of the Chemical Development Division of the Plywood Research Foundation at Tacoma, joins staff of the Division of Industrial Research of the State College of Washington, as a wood technologist.

W. J. Lowndes, assistant manager, central engineering division, Crown-Zellerbach Corporation, Seattle, named manager of the division, succeeding E. H. Vicary, retired.

## F & H WHEELS

for  
AGRICULTURE  
and  
INDUSTRY



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WESTERN REPRESENTATIVES  
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**PRODUCTIMETERS**  
SINCE 1879 *Speedometers OF INDUSTRY*

Max G. Cain named Pacific Northwest inspector, Cargo Protection & Inspection Bureau, with headquarters at new regional office in Seattle.

### Associations Elect

**California Olive Association:** Louis B. Sammis (Rocca Bella Olive Assn., Wallace) named 1949-1950 president; Lee Newkirk (Maywood Packing Co., Corning) named vice-president.

**American Welding Society:** H. E. Rhoades, San Francisco manager for the National Cylinder Gas Co., installed as chairman of the San Francisco section for the new year. Other new section officers: first vice-chairman, S. H. Edwards of S. H. Edwards, Inc., Richmond; second vice-chairman, R. E. Labagh, Victor Equipment Co., San Francisco; treasurer, E. W. Bartz, Westinghouse Electric Corporation, San Francisco, and secretary, A. C. Schwartz of the Metal & Thermit Co., San Francisco.

**Furniture Manufacturers Ass'n of Southern California:** president, A. N. Skinner, Fredrick Couch Co.; vice-president, Herman Kranz, Morris Furniture Mfg. Co.; treasurer, Phil Virtue, Virtue Bros. Mfg. Co.

**Golden Gate Paint & Varnish Production Club:** President, S. L. Davidson, National Lead Company, San Francisco; vice-president, Arthur Cramer, General Paint Corporation, San Francisco; secretary, John Beeby, W. P. Fuller & Co., South San Francisco; treasurer, Gordon Smith, Pacific Paint & Varnish Co., Berkeley.

**American Accounting Association:** Perry Mason, professor of accounting at the University of California, elected president.



William B. Tyler  
lux Company, Pasadena; treasurer, Dr. H. K. Cutter, Cutter Laboratories, Berkeley.

**California Natural Gasoline Association:** J. B. Taylor, Signal Oil and Gas Company, elected president; R. S. Tulin, Shell Oil Company, Inc., elected vice-president; E. R. Millett, Jr., re-appointed secretary-treasurer.

**United Metal Trades Assn. of Oregon:** President, H. G. Boutin, Mobilift Corporation; vice-president, Frank J. Fitzpatrick, Monarch Forge & Machine Works; treasurer, Dewey S. Weiss, Modern Pattern Works; executive secretary, Gerry Weaver; new trustees, Lester E. Andersen, Portland Iron Works; E. J. Glenn, Willamette Iron & Steel Company; Don Henderson, Service Bronze & Brass Works; Edw. G. Hufschmidt, Western Foundry Company.

### Taft-Hartley Act Clarified By More NLRB Decisions

The meaning of the Taft-Hartley Act, which passed its second birthday on August 22, has been further clarified in a recent series of National Labor Relations Board decisions on such points as mass picketing, violence on the picket line, and strikes in violation of contract.

The board's rulings have ignored the debate in Congress on the merits of the law. They will stand unless upset by the courts, or Congress amends or repeals the act.

The board has decided that the Taft-Hartley Act outlaws mass picketing if the pickets attempt to coerce or restrain non-union employees from entering or leaving a struck plant. Violence on the picket line is specifically ruled out by the law—regardless of how many persons are involved in the picketing.

Size of the picket line is not the determining factor in the board's rulings. This is a matter to be decided by local police authorities. What the board seeks is the intent of the picketing. If it is to keep non-union workers from entering or leaving a struck plant, then it is illegal.



**FLEXCO**  
**BELT FASTENERS**  
AND  
**RIP PLATES**

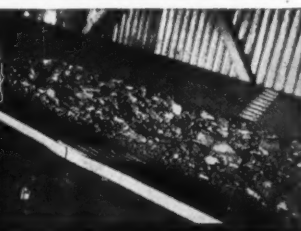
**FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH**

FLEXCO Fasteners make a tight, butt joint of great strength and durability . . . distribute the strain uniformly. Operate smoothly over flat, crowned or take-up pulleys. Made of steel, Monel, Everdur and Promal.

FLEXCO Rip Plates are for repairing and patching damaged belts.

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AS fumes rise from pickling tanks, they carry tiny acid drops with them. Up, up they go and finally settle on cross beams, window frames, overhead hoists, pipes, electrical fixtures and the like. Then trouble starts! Soon the deposited acid begins to eat through paint-coats right to the bare steel—then rust starts its destructive action.

You can stop this costly cause of rusting by adding Oakite Composition No. 38 to your pickling solution. This new additive forms a sturdy foam blanket that traps the acid fumes in the tank and holds them there. Complete details on Oakite Composition No. 38 gladly forwarded on request. Write address below. No obligation.

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*assure you Extra Values  
without Extra Cost*

• Add to the usual engineering advantages of this type of cap screw the extra values of greater strength and uniformly accurate cold forged forming—that's the result of applying the Kaufman Double Extrusion Process, without extra cost to you. Cleveland Socket Head Screws have perfectly concentric sockets, formed completely in the forging operation. It pays you to specify and buy Cleveland Socket Head Screws.

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*Top Quality*  
**FASTENERS**

ORIGINATORS OF THE  
**KAUFMAN DOUBLE EXTRUSION PROCESS**

Specialists for more than 30 years in  
**CAP SCREWS, SET SCREWS, MILLED STUDS**

Ask your jobber for Cleveland Fasteners

## Exporting an Old Railroad

The Hetch-Hetchy Railroad, more than 30 years an important line in the development of the San Francisco Hetch-Hetchy water supply system, is presently being trucked to the Port of Stockton for temporary storage awaiting export shipment. The 68-mile-long standard gauge railroad has served the construction needs of the Hetch-Hetchy aqueduct system since 1914, and as the Tuolumne County reservoir location is now adequately served by a highway system, the entire railroad was recently put up for bid by the city of San Francisco.

The purchasers of the entire railroad, the Purdy Company, a Chicago railway equipment and steel products concern, are having the rails and some of the rolling stock trucked to the open storage area of the Port of Stockton. The entire moving operation, which started on September 15, will take nearly four months to complete, and at that time the entire 7,000 tons of 60-lb. rail will be exported for further use in either South America or India.

## Kaiser Reports Payments to Uncle Sam

Henry J. Kaiser has announced that the government already has gained a return out of operations of former war plants by the Kaiser industries of \$112,231,000, plus \$75,855,000 taxes, making a total of \$188,086,000, as follows:

Principal .....	\$ 71,015,000
Interest .....	23,569,000
Rentals .....	17,647,000

	\$112,231,000
Taxes .....	75,855,000

Total .....	\$188,086,000
-------------	---------------

While the government still retains the full security of all its war-time investments in the plants, the assets that secure any Kaiser loans and purchase payments have been increased as follows:

Kaiser Steel invested in Fontana plant out of post-war earnings .....	\$ 41,237,000
Permanente Metals Corp. invested in Kaiser Aluminum improvements and expansions .....	11,000,000
Kaiser-Frazier Corporation, investments in plants, machinery, facilities, etc.....	60,592,000

Government's security increased by.....	\$112,829,000
---	---------------

RFC authorized loans totaling \$123,305,000 for the Kaiser Fontana steel plant, which was built as a war necessity. The most that was outstanding at any one time was \$109,180,000. Funds have been paid and deposited with RFC totaling \$35,083,000 on principal and \$18,659,000 in interest on the Kaiser Steel plant. This makes a total received by the government to date from Fontana of \$53,742,000.



# Western TRADE WINDS

## News about those who distribute and sell industrial equipment and materials



Howard W. King

Howard W. King appointed West Coast district manager for Diamond Chain Company, Inc., Indianapolis, Ind. His headquarters will be in San Francisco. King has been with Diamond Chain for 21 years, and has been district sales representative for the company in Chicago for the past fourteen.

L. W. Barton appointed Salt Lake branch manager for H. J. Heinz Co., replacing G. E. Gee, transferred to Los Angeles as a branch manager. Barton and Gee have both been with the firm for the past 13 years.

Fentron Steel Works, Inc., Seattle, metal window and door manufacturers, have opened a San Francisco sales office in which R. M. DesCamp, former chief estimator of the company, will promote sales and service.

Cate Equipment Company, 49 E. Ninth South, Salt Lake City, appointed distributor for the Chain Belt Company of Milwaukee, to handle the products of the Chain and Transmission, Baldwin-Duckworth and the Conveyor and Process Equipment Divisions of the company.

Hyster Company, Seattle, named exclusive distributors in Washington and Alaska for the electric fork trucks, cranes, platform trucks and tractors made by The Baker-Raulang Company of Cleveland, Ohio. Howard J. Laurent, former Baker distributor, is to be manager of this electric truck division.

Flexitallic Gasket Company, Camden, N. J., appoint two distributors for the state of California: Power Engineering and Equipment Co., Inc., 131 N. Marine Ave., Wilmington, will serve Southern California, including San Luis Obispo, Kern and San Bernardino counties; Northern California will be served by Transmission Engineering Co., 53 Stevenson Street, San Francisco 5.



W. J. Armstrong

W. J. Armstrong, Byron Jackson Co. sales engineer, moves into the Northwest to handle sales and service for the BJ Pump Division. From his office in the Lloyd Building, Seattle, he will be equipped to handle on-the-job supervision of paper mill, mine power station, industrial and agricultural installations throughout Washington, Western Idaho, British Columbia and Alaska.

Donn R. Court elected vice-president in charge of sales for Cutter Laboratories. Court was formerly director of sales and advertising for the company.

Paul R. Brousse appointed manager of Western Electric Co.'s Western zone, with San Francisco headquarters. He succeeds C. H. Hanson, who is the new manager of the company's Tonawanda, N.Y., plant.

M. W. Marsh of Robert M. Taylor Co., San Francisco, has been elected president of the Materials Handling Association of Northern California, succeeding Ray Perin of the Ira G. Perin Co. Robert Griffin of Glen L. Codman Co. was named vice-president and Roy Fellom, Jr., of Pacific Factory, secretary.



W. H. Kilkenny

William H. Kilkenny is the new general manager of the Hyster Company southern California retail store at 5301 Pacific Building, Huntington Park.

Nelson J. Leonard appointed exclusive sales representative in Seattle and surrounding territory for Cleveland Tramrail Division of The Cleveland Crane & Engineering Co., Wickliffe, Ohio, makers of overhead materials handling equipment. Leonard's offices are at 5764 - 28th Avenue, N.E., Seattle 5.

Bruce W. Carson assigned to position of field sales engineer in Arizona for The B. F. Goodrich Company, Industrial Products Sales Department, with headquarters at 200 East Van Buren Street, Phoenix.

Oxygen Supply & Equipment Company, newly formed Portland firm, appointed authorized dealers for the National Cylinder Gas Company. The new firm will be at 232 Weidler Street and will be in a position to supply industrial Portland's needs for oxygen, acetylene, equipment and supplies and other industrial equipment. New firm will be headed by R. R. Todd, William R. Taylor and William Hoppe.

Independent Pneumatic Tool Company of Aurora, Illinois, announce the appointment of two new managers for its sales and service branches. Eugene C. O'Connell, former service engineer in their Los Angeles branch, is the new manager at San Francisco, and the new Denver manager is Clarence H. Gabriel, formerly service engineer in the company's Salt Lake branch.

The Hallidie Machinery Company, now representing the Warner & Swasey Company in Washington, will now serve the company's customers in the state of Oregon as well. Sales and application service on Warner & Swasey turret lathes, single and multiple spindle automatics and tapping and threading machines will be under the direction of Dan J. Melody, with headquarters at the Hallidie Portland office at 1020 S. W. Taylor Street. Harron, Rickard & McCone Company of San Francisco will represent Warner & Swasey in northern California.



R. M. Schow

R. M. Schow appointed district representative in the Los Angeles area for Hertner Electric Co. of Cleveland, Ohio. He will be in charge of the Hertner Company's motor, motor-generator battery charger, motor-generator sets and control equipment business in the Los Angeles territory.

Lloyd J. Bohan named West Coast representative for the A. F. Holden Company of New Haven, Connecticut, and Detroit, Michigan. Bohan has been a manufacturer's agent in Southern California during the past two years, specializing in heat treating equipment.

Louis B. Lester, Los Angeles, becomes sales and service representative for southern California for the two companies: The Motor Generator Corporation, Hobart Brothers Affiliate, who manufacture a complete line of battery chargers for electrical trucks, and C. & D. Batteries, Inc., who also make a complete line of industrial electrical truck batteries. Lester is equipped with full service facilities for both of these lines.

Dr. Russell M. Pickens, technical sales director for Rayonier, Inc., elected vice-president and put in charge of sales.

Lyon Metal Products, Inc. of Aurora, Ill., have opened their first warehouse in the country at 1755 Utah Avenue, Seattle. The company, manufacturers of diversified steel products (lockers, shelving, folding chairs, kitchen cabinets) have appointed Earl Baltazor from their Aurora plant to take charge of the new Seattle warehousing operations.

Stu Collbran, with New Jersey Zinc Company in San Francisco, has been transferred to their Chicago plant, while Bob Munson moves up to San Francisco from Los Angeles.



Carl O. Mortensen

Carl O. Mortensen appointed by Oakite Products, Inc., New York, as the company's special technical and sales service representative to food plants in the Portland, Oregon, area. Mortensen comes to Oakite from the Puget Sound Industrial Machinery Depot in Portland, where he served food-processing and dairy-products plants in a technical advisory and sales capacity.

(Continued on page 92)

**OXYGEN**  
**ACETYLENE**  
**HYDROGEN**  
**NITROGEN**  
**WELDING**  
**EQUIPMENT**  
**& SUPPLIES**

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SAN FRANCISCO • OAKLAND • LOS ANGELES

This is a fast-moving  
efficient organization  
of competent people,  
always ready and able  
to serve you well.

## TRADE WINDS

(Continued from page 91)

Gault Davis named sales manager in the southern California area for Ac'cent, the monosodium glutamate product put out by Amino Products Division, International Minerals & Chemical Corp. Davis will make his headquarters at the new Ac'cent sales offices, 1250 Wilshire Blvd., Los Angeles, and will head up all retail, institutional and bulk sales. Massie-O'Neill Brokerage Company, Los Angeles, has been named as new brokers for Ac'cent and will work with Davis.

Walter P. Quinn named manager of Fruehauf Trailer Company's factory branch at Spokane and regional manager in charge of the Billings branch. John Rogers, formerly identified with the Fruehauf dealership in Hawaii, goes to Spokane as service superintendent and John Bianca heads the parts department.



Walter P. Quinn

Paraffine Companies, Inc. add several new men to their Paint Sales Division: James H. Murray will handle industrial paint sales for Pabco in Seattle territory, where he has been in the paint jobbing business for the past 12 years; J. H. Hertling will take over the company's entire southern Idaho - eastern Oregon territory, with headquarters in Boise. In California, Thomas B. Bryant has taken over the Contra Costa County territory just east of Oakland; L. J. Perrine has been placed in charge of the San Fernando territory; Harley D. Reeser has become assistant to Pabco's southern district paint sales supervisor, John A. Elliott, and will be at the company's Southgate office, and industrial paint sales in the greater Los Angeles area will be handled by Philip J. Carragher.

Rich Steel Company has just moved into new warehouse and office buildings at 8011 Beach Street, Los Angeles.

Paul B. Shoemaker appointed vice-president and director of sales of Georgia-Pacific Plywood & Lumber Company, manufacturers, distributors and exporters of plywood and lumber.

George C. McNutt, Advertising, moves to larger quarters at 3031 Telegraph Ave., Oakland 9, Calif. New telephone: Olympic 3-1841.

J. Harold Cyr named acting sales manager of Northern California sales and wholesale offices, at San Francisco, for Pope & Talbot, Inc. He succeeds Fred A. Amburgey, resigned.

Charles C. Sisk appointed sales manager for Winkler & Smith Products Company, who make Anagold Citrus Cocktail, Orange Juice, Old-Fashioned Lemonade and other citrus products.

Oakite Products, Inc., move their Northern California sales office to new and larger quarters at 681 Market Street, San Francisco. Recent additions to the company's staff of technical service representatives are J. F. Chapman at San Jose to replace J. F. Violette, transferred to Alameda, and R. L. Booth, stationed at Seattle.

The Fuller Company has acquired for its Northern California staff Norman Barber, formerly with the General Industrial Equipment Company, to serve as sales engineer, and Edward Brooks, transferred to San Francisco from the home office, to serve as field representative.

William Clements assigned to the Pacific, north coast and mountain regions of the country to represent the Belfield Valve Division, Minneapolis - Honeywell Regulator Co. of Minneapolis. Clements will have his headquarters in Los Angeles.

Mitchell H. Hirsch, C. H. Mitchell Company, 769 Venice Blvd., Los Angeles, announced as sales representative for the state of California for William Brand & Company, manufacturers of the Turbo line of electrical insulating materials.



• The Angelus Engineering Corporation, Los Angeles, fabricators of cranes, tram-rail systems and conveyors, and southern California, Arizona and Nevada distributors for the Cleveland Tramrail Division, Cleveland Crane & Engineering Co., has moved its plant and offices to 10727

Garfield Ave., South Gate, Calif. (above) These new and expanded facilities make it possible for them to carry more complete stocks of archbeams and other equipment useful in aiding industry in southern California in the working out of its materials handling problems.

Arthur Hall joins the San Francisco sales staff of the Acme Steel Company. He was formerly associated with the Don Budge organization.

M. E. Canfield Company, Los Angeles, appointed stocking distributors for the line of industrial casters manufactured by the Fairbanks Company. They will carry a complete line of casters ranging from the light duty furniture type to the heavy duty industrial, and in all sizes and types.

Promotions at American Manganese Steel Division of American Brake Shoe Company: William C. Bruton, who becomes district sales manager, with his territory covering the Pacific Northwest including the Yukon Territory and Alaska, and his headquarters, Oakland; Robert H. Elem appointed Pacific Coast manager of the Welding Products Department, with his headquarters in Los Angeles.

C. F. Rayment appointed Western sales representative for Hydraulic Equipment Company of Cleveland, Ohio, makers of a complete line of oil-hydraulic pumps, valves and cylinders. Rayment's offices will be at 48 Mariposa Way, Walnut Creek, Calif.



H. J. Simpson

Howard J. Simpson, formerly with the Air Conditioning Engineering Corporation in Las Vegas, Nevada, becomes a sales representative for the state of Nevada by The National Radiator Co., Johnstown, Penna. Simpson will make his headquarters at 1734 South Main Street, Las Vegas.

The A. B. Boyd Company, manufacturers' agents with headquarters in San Francisco and branches in Los Angeles, Portland and Seattle, have recently incorporated. The corporation's new officers are E. A. Lusch, president; A. B. Levisse, vice-president; V. J. Russi, vice-president; R. M. Treadgold, vice-president, and Valda Kinkead, secretary. The company will continue to represent the same firms as in the past, including American Felt Company, Scoville Manufacturing Company, Fastener Division, Hewitt Rubber Company, Restfoam Division, the Athol Manufacturing Company, The Bolta Products Company and Armstrong Cork Company in their Accopac line.



\* American Drill Bushing Company's new modern office headquarters and manufacturing plant, at 5107 Pacific Blvd., Los Angeles, are shown above. The new plant allows additional room for more modern equipment and increased production facilities, and provides storage space for maintaining complete stocks of bushings manufactured by the firm.

Harry Schrader, Jr. is the new managing director of the Douglas Fir Plywood Association, sales promotion organization for the 54-factory Pacific Coast plywood industry. Schrader succeeds Charles E. Devlin, who resigned from the plywood association 60 days ago to become general sales manager of Simpson Logging Company of Seattle.

Hendrie & Bolthoff Co., 1635 Seventeenth St., Denver, named dealer for Allis-Chalmers centrifugal pumps in all of Colorado and Wyoming and in New Mexico counties of San Juan, Rio Arriba, Taos and Colfax.



E. R. Babylon

E. R. Babylon, sales metallurgist for Kaiser Steel Corporation, transferred from Los Angeles to the company's headquarters in Oakland to promote the sale of Kaisaloy, the company's new lightweight, high strength low-alloy steel.

Harvey C. Heil named manager of the Diesel Engine Department of Fairbanks, Morse & Co., 4535 South Soto Street, Los Angeles. Heil replaces Russ Stevens, who has taken up a new assignment with the company in the east.

William B. McWhirter named manager of sales and services in San Francisco area for International Business Machines Corp.

Gould Storage Battery Corporation, Trenton, N. J., has now combined under one roof, at 244 Fremont Street, San Francisco, the facilities formerly carried out at three different locations for sales, service and warehouse activities. C. H. Hart, formerly district manager in San Francisco, will now manage the entire Western region, which includes San Francisco, Los Angeles, Portland, Seattle and Denver.

## Materials Handling "Users Night"

Materials Handling Association of Southern California held their second annual "Users Night" dinner meeting on October 20, at Roger Young Auditorium in Los Angeles.

A series of talks was given by selected members of the organization. Stanley E. Morris, of Stanley E. Morris Co., president of the association, acted as moderator.

The following members touched upon the development and use of a wide variety of materials handling equipment:

G. T. Cherry, of Colson Equipment & Supply Co., who discussed floor trucks and casters; G. J. Sibley, of Mathews Conveyer Co., who talked about conveyors; C. J. Mayo, of Spencer & Morris Div., Whiting Corp., who enlightened his audience concerning hoists, monorails, and cranes; and W. O. Hicks, of Yale & Towne Mfg. Co., who told the association about the developments in mechanized industrial trucks.

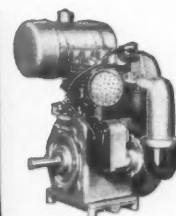
Guests of the evening included many southern California industrialists.

## WISCONSIN Heavy-Duty Air-Cooled Engines Offer Reputability TO MATCH YOUR OWN

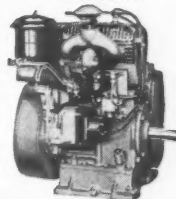
If your company manufactures power-operated equipment of any kind that can utilize engine power within a 2 to 30 Horsepower range... your good name is safe when the performance of your equipment is entrusted to Wisconsin Air-Cooled Engines.

Here is reputability to match your own, no matter how high or exacting your standards may be. Every Wisconsin Engine from the smallest to the largest is of heavy-duty design and construction. The perfectly balanced drop-forged crankshaft of every Wisconsin Engine runs on tapered roller bearings at both ends to take up end- and radial thrusts... a typical detail of Wisconsin heavy-duty design that assures the user "Most H.P. Hours" of on-the-job service.

Wisconsin Heavy-Duty Air-Cooled Engines are available in 4 cycle single cylinder, 2- and 4- cylinder types in a complete power range up to 30 H.P.



Single cylinder sizes 3 to 6 H.P.



Two cylinder sizes, 7 to 13 H.P.



V-type 4-cylinder sizes, 15 to 30 H.P.



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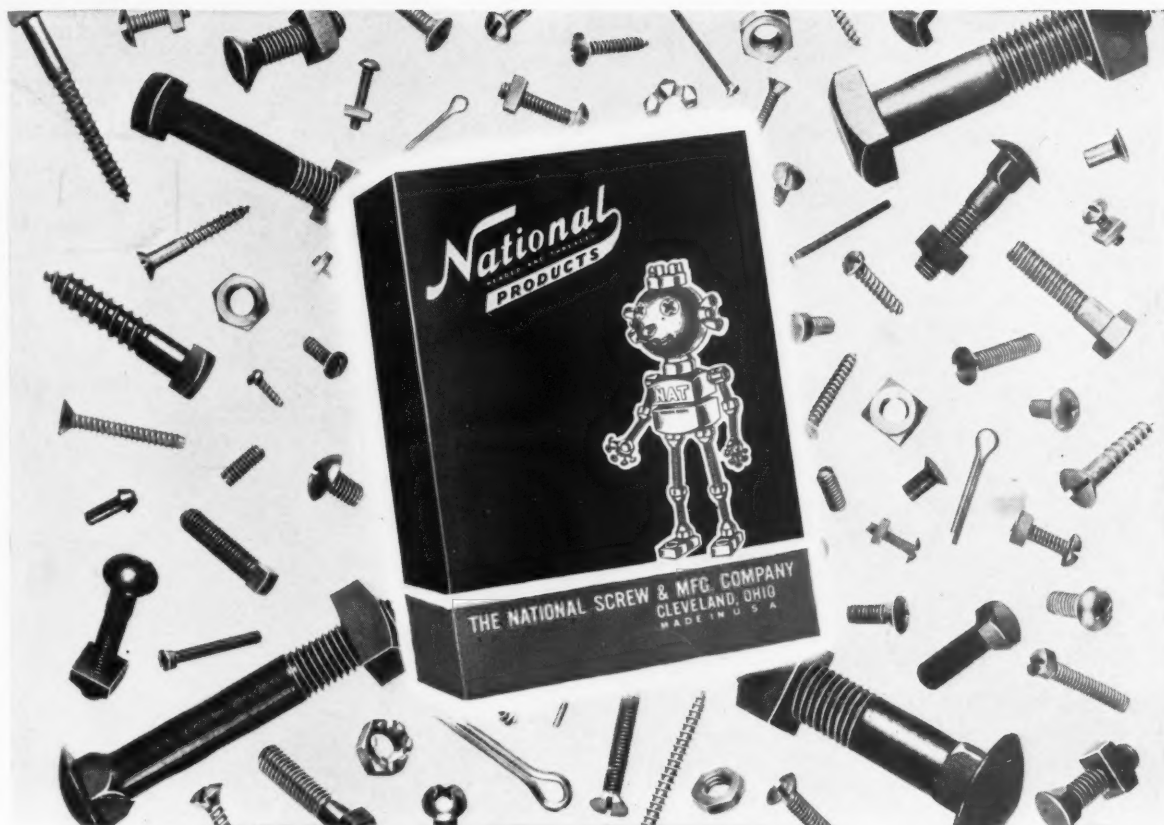
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